State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES
Northern District

SUMMARY OF OPERATIONS

FOR

WATERMASTER SERVICE IN NORTHERN CALIFORNIA

1989 Season

DECEMBER 1990

Gordon K. Van Vleck
Secretary for Resources
The Resources
Agency

George Deukmejian
Governor
State of
California

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FOREWORD

This report describes the watermaster service provided by the Department of Water Resources to areas in Northern California during the 1989 irrigation season. Authority for its preparation and publication is stated in the California Water Code, Division 2, Part 4, Chapter 7.

Information about 1989 watermaster service is presented in two sections in the attached Summary of Operations. The first gives general introductory information about water rights, water supply, service areas, and watermaster duties; the second describes the fourteen active service areas, twelve in the Department's Northern District and two in the Division of Operations and Maintenance, Oroville Field Division. Each of these service area descriptions gives detailed information on the area, the basis of watermaster service, sources of water supply, methods of distribution, 1989 water distribution, and personnel used.

Wayne S. Gentry, Chief
Northern District

TABLES (Continued)

TABLES (Continued)

Non-Judicial Decisions

A permit or "license to appropriate" can be issued by the State Water Resources Control Board (SWRCB), or agreement can be reached by mutual consent of the water users involved.

Court Adjudication

A less extensive method of defining water rights is the "court adjudication" procedure. This type of adjudication results when two or more parties involved in a water rights dispute seek a solution to their problem under civil law. A decision handed down in such a civil action determines only the water rights of the parties involved in the action and therefore does not necessarily define all water rights on the stream. As a result, serious conflicts sometimes arise between decreed water right owners and persons claiming longer-standing riparian or appropriative rights that were not specified in the decree.

Court Reference

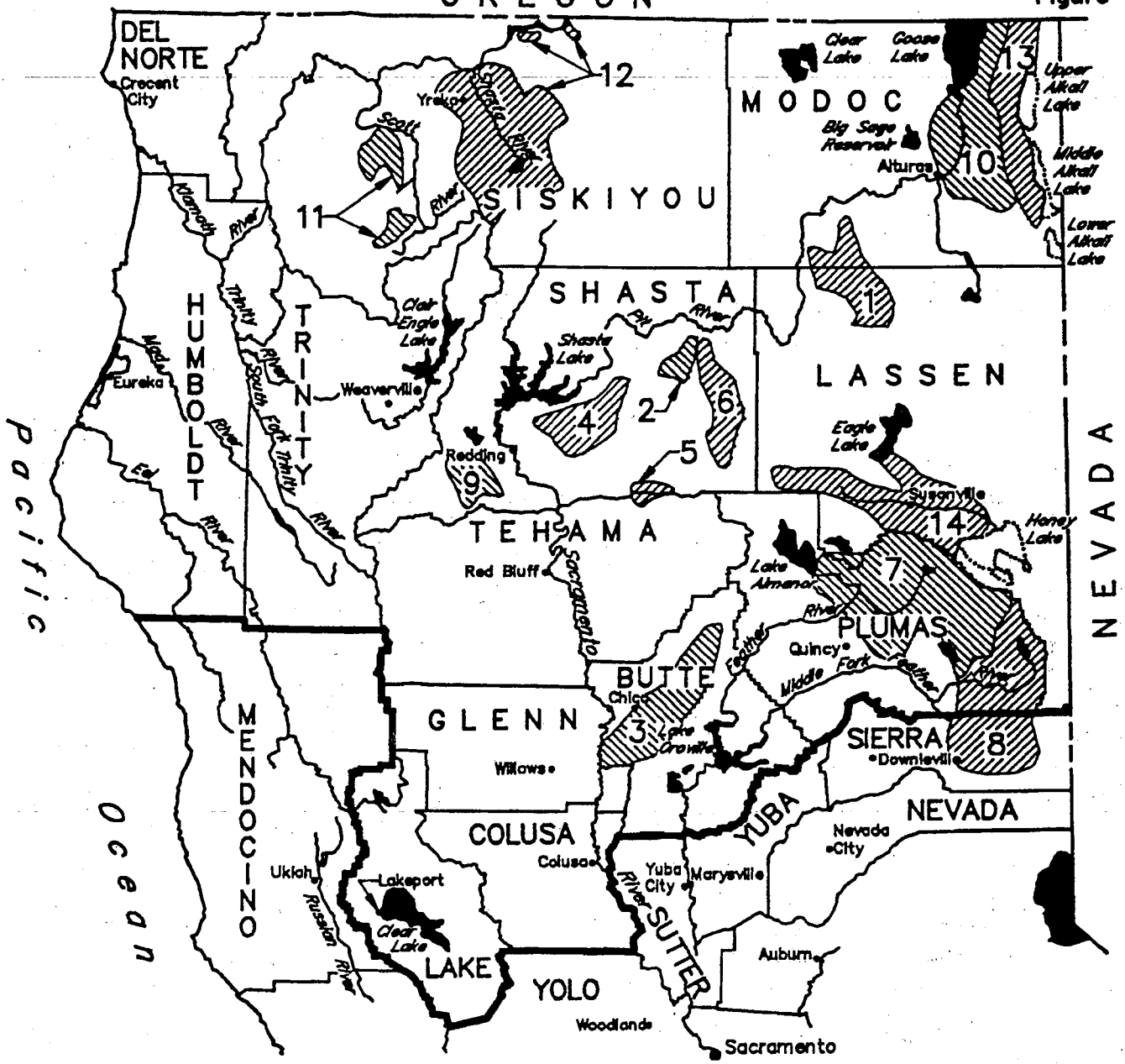
The "court reference" type of adjudication arises when a civil action, as discussed, is referred to SWRCB for a determination under authority contained in Sections 2000-2076 of the Water Code. The Board's report becomes the basis for the court's decision. As in court adjudications, a court referee determines only the water rights of the parties involved in the action.

Statutory Adjudications

The California Water Code (Sections 2500-2900) gives a procedure whereby water users of any stream may petition the SWRCB, Division of Water Rights, to make a legal determination of all water rights on that stream. If the Board finds that such a determination is in the best public interest, it proceeds with a legally binding decision. This results in a court decree that defines all water rights on the stream.

Figure 1 contains a location map of the service areas, the number of decreed owners, and the amounts of water rights for each area. Table 1 lists the Superior Court decrees and their type.

Figure 1



1989 Decreed Water Rights

Service Area	Number of Decreed Water Users	Total Decreed Water Rights ft3/s
1. Ash Creek	47	123.610
2. Burney Creek	11	33.550
3. Butte Creek	47	431.438
4. Cow Creek	96	56.497
5. Digger Creek	111	23.381
6. Hat Creek	86	135.742
7. Indian Creek	49	96.715
8. M.F. Feather River	112	375.539
9. N.F. Feather River	13	30.300
10. N.F. Pit River	106	217.540
11. Scott River	108	128.570
12. Shasta River	208	619.157 1/
13. Surprise Valley	198	401.170 2/
14. Susan River	222	353.349

1/ Includes Willow Creek near Ager which is based on a percentage of flow

2/ Includes Pine Creek near Alturas

TABLE 1

WATERMASTER SERVICE AREAS, STREAM SYSTEMS
AND
SUPERIOR COURT DECREES REGULATING WATER DISTRIBUTION

Watermaster Service Area	Name of Stream System[a/]	County	Decree Number	Decree Date	Decree Type*	Date Watermaster Service Area Created	Remarks
Ash Creek	Ash Creek	Modoc ** and Lassen	3670	10-27-47	CR	4-03-59	Included as part of Big Valley service area 1949 through 1958.
Big Valley	Pit River	Modoc ** and Lassen	6395	2-17-59	S	11-13-34	Service provided in accordance with recorded agreement in 1934. Service area operated under recorded agreement 1935 through 1958, and under decree since 1959. Service discontinued on December 31, 1981.
Burney Creek	Burney Creek	Shasta	5111	1-30-26	CR	9-11-29	Service provided in accordance with decree since 1926.
Butte Creek	Butte Creek	Butte	18917	11-06-42	S	1-07-43	
Cow Creek [b/]	North Cow Creek	Shasta	5804	4-29-32	CR	10-17-32	
	Oak Run Creek	Shasta	5701	7-22-32	CR	10-17-32	
	Clover Creek	Shasta	6904	10-04-37	CR	1-21-38	
Digger Creek	Digger Creek	Shasta and Tehama **	2213	8-12-99	C	6-11-64	
			3214	5-27-13	C		
			3327	10-16-17	C		
			4570	2-24-27	C		
Hat Creek	Hat Creek	Shasta	5724	5-14-24	CR	9-11-29	Service provided in accordance with decree since 1924.
			7858	10-07-35	CR		
Indian Creek	Indian Creek	Plumas	4185	5-19-50	S	2-19-51	
Middle Fork Feather River	Middle Fork Feather River	Plumas ** and Sierra	3095	1-22-40	S	3-29-40	
North Fork Cottonwood Cr.	North Fork Cottonwood Cr.	Shasta	5479	6-09-20	CR	9-11-29	Service provided intermittently in accordance with the decree since 1924.
North Fork Pit River	North Fork Pit River and all tributaries except Franklin Creek	Modoc	4074	12-14-39	S	12-18-39	All stream systems consolidated into North Fork Pit River service area 12-13-40.
	New Pine Creek	Modoc	2821	6-14-32	CR	6-22-32	
	Davis Creek	Modoc	2782	6-30-32	CR	7-13-32	
	Franklin Creek	Modoc	3118	9-08-33	CR	9-14-33	
	Cottonwood Creek	Modoc	2344	5-03-40	CR	12-13-40	
Scott River	French Creek	Siskiyou	14478	7-01-58	CR	11-19-68	French, Shackleford, and Wildcat Creek were combined in 1980 to form the Scott River service area. Sniktaw Creek was added on April 1, 1981.
	Shackleford Creek	Siskiyou	13775	4-10-50	S	11-06-50	
	Wildcat Creek	Siskiyou	30662	1-16-80	S	5-01-80	
	Sniktaw Creek	Siskiyou	30662	1-16-80	S	4-01-81	
Seiad Creek	Seiad Creek	Siskiyou	13774	4-10-50	S	11-06-50	No service provided since 1983.
Shasta River	Shasta River	Siskiyou	7035	12-29-32	S	3-01-33	
	Willow Creek	Siskiyou	24482	6-22-72	C	7-01-72	
	Cold Creek	Siskiyou	29348	7-05-78	S	4-01-81	
Surprise Valley	Cedar Creek	Modoc	1206	5-22-01	C	9-11-29	All adjudicated stream systems in Surprise Valley were consolidated into the Surprise Valley service area on 1-10-39. Bidwell Creek was added on March 16, 1960. Service started on Cedar Creek in 1926 in accordance with the decree. Service was provided on Soldier and Owl Creeks in 1929 in accordance with the decrees by order of the court.
			2343	2-15-23	C		
	Soldier Creek	Modoc	2405	11-28-28	CR	9-11-29	
	Owl Creek	Modoc	2410	4-29-29	CR	9-11-29	
	Emerson Creek	Modoc	2840	3-25-30	CR	4-02-03	
	Mill Creek	Modoc	3024	12-19-31	CR	12-30-31	
	Deer Creek	Modoc	3101	1-25-34	CR	12-29-34	
	Pine Creek near Cedarville	Modoc	3391	12-07-36	CR	1-13-37	
	Rader Creek	Modoc	3626	6-04-37	CR	6-12-37	
	Eagle Creek	Modoc	2304	4-05-26	C	1-10-39	
			3284	11-05-37	CR		
	Pine Creek near Alturas	Modoc	Agreement	11-22-23		1-12-35	Pine Creek was transferred from North Fork Pit River to Surprise Valley Watermaster Service Area in 1988.
	Cottonwood Creek	Modoc	6903	12-01-64	C	7-01-77	
	Bidwell Creek	Modoc	6420	1-13-60	S	3-16-60	
Susan River	Susan River	Lassen	4573	4-18-40	CR	11-10-41	
	Baxter Creek	Lassen	8174	12-15-55	S	2-16-56	
	Parker Creek	Lassen	8175	12-15-55	S	2-16-56	

* Explanation of type of decree:

C - Court adjudication (court makes determination from evidence submitted--no report of referee)
CR - Court reference (referred to State Water Resources Control Board for investigation and report)
S - Statutory adjudication (State Water Resources Control Board is petitioned by water users to make a determination of all water rights on a stream system)

** Decree entered by the Superior Court of this county.

a/ Major tributaries only.

b/ Mainstem Cow Creek not in service area.

Watermaster Service Areas

Watermaster service is provided in areas where the rights have been defined by the superior court of the county, or by agreement, and where an unbiased qualified person is needed to properly apportion the available water according to the established rights. The Director of the Department of Water Resources creates watermaster service areas where these conditions exist, following either a request by the users or an order by the superior court.

The first watermaster service areas were created in September 1929. Before then, some watermaster service was provided in accordance with the Water Commission Act of 1913. There are now about 50 streams in Northern California that are under State watermaster service. The newest service areas were created in 1979.

The counties and principal water sources of the various service areas in Northern California are listed in Table 2.

Of these fourteen areas, twelve are in the Department's Northern District and two are in the Division of Operation and Maintenance, Oroville Field Division.

Description of Region

The service areas are mainly in the mountainous northeastern part of the State where the growing season varies between about 100 and 140 days. Meadow hay and alfalfa are the principal crops under irrigation, although much land is used exclusively for pasturing livestock. Most irrigation is done by gravity systems, with water users diverting directly from the streams at one or more diversion points. However, pumped diversions and sprinkler irrigation systems are becoming popular in some areas.

Watermaster Responsibilities

To assure the proper distribution of water within the service area, each watermaster must ascertain the amount of water available and distribute it both by amount and priority according to established water rights.

Authority

To accomplish this, the watermaster gets his authority both from Water Code and from provisions of pertinent court decrees or voluntary agreements to physically regulate the streams in the service area. He is further authorized to supervise the design, construction, operation, and maintenance of diversion dams, headgates, and measuring devices.

Each watermaster supervises water distribution at around 100 to 200 diversions in one or more service areas. The need for frequently checking and regulating these diversion points increases substantially in years of short water supply.

TABLE 3

PRECIPITATION AT SELECTED STATIONS - 1988-89 SEASON

Current Season / Long-term Average = in inches

Station	County	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Total	Percent of Mean
Fort Jones R.S.	Sisk.	.14 / 1.39	5.98 / 2.94	1.51 / 4.49	1.60 / 4.77	.45 / 2.79	4.97 / 2.00	.85 / 1.08	1.31 / .76	.34 / .78	.00 / .34	1.65 / .49	2.28 / .65	21.08 / 22.48	94
Happy Camp R.S.	Sisk.	.14 / 3.67	15.68 / 7.91	4.73 / 10.90	5.27 / 12.18	2.14 / 7.78	14.61 / 6.51	2.40 / 2.78	2.15 / 1.45	.18 / .61	.09 / .25	.06 / .54	2.44 / 1.09	49.89 / 55.67	90
Yreka	Sisk.	.11 / 1.25	7.05 / 2.34	1.83 / 3.83	1.44 / 3.68	.60 / 2.17	4.55 / 1.80	1.54 / .89	2.48 / .77	.85 / .85	.00 / .40	.95 / .56	2.04 / .59	23.44 / 19.13	122
Redding, WSO Municipal AP	Shasta	.11 / 2.03	10.11 / 5.56	3.68 / 7.03	2.14 / 8.51	1.11 / 6.19	10.94 / 4.96	3.76 / 2.82	.73 / 1.28	.95 / .83	.00 / .18	.23 / .51	4.83 / 1.05	38.59 / 40.95	94
Hat Creek P.H. #1	Shasta	.70 / 1.23	4.19 / 2.09	1.41 / 3.22	1.51 / 3.24	1.07 / 2.53	5.37 / 2.09	.76 / 1.22	1.94 / 1.22	.41 / .89	.00 / .21	.26 / .37	2.06 / .56	19.68 / 18.87	104
Lookout 3WSW	Lassen	.00 / 1.32	5.17 / 3.39	1.25 / 3.62	8.91 / 3.73	1.91 / 2.58	10.81 / 2.59	1.97 / 1.45	.90 / 1.19	.79 / 1.06	.00 / .38	1.57 / .53	1.22 / .90	34.50 / 22.74	152
Alturas R.S.	Modoc	.06 / .94	3.26 / 1.31	.85 / 1.53	1.28 / 1.67	.77 / 1.23	1.88 / 1.25	.61 / 1.00	1.22 / 1.21	.34 / 1.09	.00 / .31	1.13 / .43	1.16 / .48	12.56 / 12.45	101
Jess Valley	Modoc	.16 / 1.38	3.79 / 1.89	2.37 / 1.96	2.95 / 1.99	.67 / 1.67	2.20 / 1.82	1.30 / 1.80	1.66 / 2.04	3.01 / 1.57	.03 / .48	1.42 / .64	2.29 / .73	21.85 / 17.97	122
Cedarville	Modoc	.00 / 1.18	4.29 / 1.61	.95 / 2.70	.97 / 2.02	.86 / 1.36	2.09 / 1.33	.62 / 1.02	.90 / 1.11	.20 / .83	.00 / .37	1.03 / .38	1.59 / .48	13.50 / 14.39	94
Susanville Airport	Lassen	.01 / 1.14	4.37 / 1.43	.89 / 2.59	.48 / 2.88	1.46 / 1.93	3.13 / 1.38	.17 / .64	2.04 / .75	1.21 / .67	.00 / .30	.44 / .22	1.60 / .36	15.80 / 14.29	111
Greenville R.S.	Plumas	.06 / 2.31	8.89 / 4.64	2.94 / 7.00	2.08 / 8.47	2.84 / 6.25	15.57 / 4.95	1.40 / 2.72	2.38 / 1.59	2.22 / .85	.00 / .30	.72 / .46	2.31 / .67	41.41 / 40.21	103
Sierraville R.S.	Sierra	.18 / 1.97	7.90 / 2.99	1.78 / 4.73	1.68 / 5.46	2.38 / 3.75	6.77 / 2.90	.32 / 1.56	.64 / 1.35	1.02 / .60	.00 / .32	1.50 / .42	1.90 / .52	26.07 / 26.57	98
Vinton	Plumas	.04 / .91	4.26 / 1.33	1.17 / 2.15	1.09 / 2.39	1.14 / 1.54	3.66 / 1.26	.04 / .78	1.64 / .99	1.18 / .64	.00 / .32	1.18 / .38	1.53 / .37	16.93 / 13.06	130

NOTE: Current season above line; long-term averages below line.

an indication of the related water supply available for distribution, and provides a basis for comparing the current year's supply with a long-term average.

Table 4 shows the snowpack on April 1, 1989 on all snow courses, and the snowpack on May 1, 1989 on selected courses. This information comes from the Department's basic data files.

Streamflow

The general water supply available for diversion within each watermaster area is determined from stream gaging stations placed at key locations in the main stream channels. Several major stations are installed and maintained by the Department and the U. S. Geological Survey as part of a Federal-State program for collection of year-round streamflow records. In addition, several stream gaging stations are installed and operated by the watermasters during the irrigation season to provide supplemental information. Also, water stage recorders are often installed by the watermaster in selected diversion ditches to further assist him in proper distribution of the various water right allotments.

Table 5 presents runoff data at selected stream gaging stations in or near the service areas.

TABLE 4

SNOWPACK AS OF APRIL 1 AND MAY 1, 1989, AT REPRESENTATIVE SNOW COURSES

Watermaster Service Areas	Snow Course* Group Related to Each Service Area	Calif. I. D. No.	Elevation (in feet)	WATER CONTENT OF SNOW				
				April 1 Average (in inches)	April 1, 1989**		May 1, 1989	
					In inches	In Percent of April 1 Average	In Inches	In Percent of April 1 Averag
Ash Creek	Blue Lake Ranch	28	6,800	12.6	13.2	105		
Burney Creek	Thousand Lakes	33	6,500	38.1	32.4	85	24.3	64
Butte Creek	Humbug Summit	60	4,850	12.1	2.2	18	0.0	0
	Silver Lake Meadows	45	6,450	30.5	27.5	90	6.8	23
Cow Creek	New Manzanita Lake	343	5,900	8.1	10.0	123		
Digger Creek	Burney Springs	41	4,700	2.8	0.0	0		
Hat Creek	New Manzanita Lake	343	5,900	8.1	10.0	123		
Middle Fork Feather River	Mount Dyer No. 1	48	7,100	25.5	21.0	82	6.4	25
	Rowland Creek	280	6,700	18.5	19.4	105	5.5	30
	Yuba Pass	74	6,700	31.9	32.8	103	11.9	37
North Fork Pit River	Cedar Pass	30	7,100	17.2	22.0	128		
Scott River	Middle Boulder No. 1	5	6,600	31.5	27.2	86	13.1	42
Shasta River	Little Shasta	2	6,200	20.6	23.4	114		
Shasta River	Parks Creek	1	6,700	36.6	35.2	96	22.0	60
South Fork Pit River	Adin Mountain	35	6,350	13.6	14.0	103	0.0	
Surprise Valley	Mount Bidwell	78	7,200	24.4	31.9	131		

*. Snow courses are listed in order of elevation with each geographical group of watermaster areas.
** Data collected only at stations listed.

TABLE 5

RUNOFF, SELECTED STATIONS - 1988-89 (ACRE-FEET)

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual Total	Long Term Average	Percent of Average
Bidwell Creek near Fort Bidwell	203	368	499	489	561	1,837	4,596	5,280	3,031	818	354	296	18,332	18,000	102
Burney Creek at Burney	429	2,481	1/	1/	1/	17,860	11,290	3,326	1,105	664	469	498	1/	57,000	2/
Butte Creek near Chico	4,550	11,980	10,350	12,130	11,470	77,890	34,760	18,660	10,090	7,960	7,050	4,850	211,700	296,300	71
Hat Creek near Hat Creek	7,150	7,220	7,180	7,040	6,270	9,380	9,390	9,770	9,030	7,450	7,010	6,980	93,870	103,600	91
Pit River near Canby	1,060	5,100	4,150	2,840	23,310	65,010	26,540	12,950	4,890	1,270	2,200	3,940	153,300	181,100	85
Scott River near Fort Jones	1,680	21,870	18,010	18,940	17,920	104,200	87,910	56,360	21,830	4,530	1,270	1,910	356,400	475,300	75
Shasta River near Yreka	5,580	11,050	10,550	11,920	9,740	21,410	12,500	8,220	3,980	1,670	2,260	6,170	105,000	135,500	77
Susan River at Susanville	297	1,460	724	524	2,110	23,240	9,820	4,150	6,480	3,720	123	191	52,839	68,250	77

1/ No Record
2/ Incomplete Record

SERVICE AREA DESCRIPTIONS AND 1989 NARRATIVES

This portion of the report consists of fourteen sections, one for each service area active in 1989, presented in alphabetical order.

Each of these sections presents a description of the particular service area, including location, geography, and general characteristics. Following this is a section entitled "Basis of Service," which includes such data as the case number, date, and type of decrees, a brief summary of the decree or agreement that defines the water rights, the date the service area was created, and other related information.

These service area descriptions also give data on the water supply, methods of distribution, significant events of the watermaster season, and daily streamflow records. The water right ownerships are updated as of March 1 each year from County Assessors' records.

As in previous years, watermaster service is activated on different dates in the various areas depending upon the streamflow conditions, the ranchers' needs for the water, or, as on some streams, the terms of the decree. Service was continued in all areas through the growing season as long as needed.

The date service was started in each service area and the name of the watermaster in charge are listed on Table 6.

TABLE 6

START-UP DATES AND WATERMASTERS

Service Area	Date Service Began in 1989	Watermaster
Ash Creek	April 1	John P. Clements
Burney Creek	May 1	James P. Langley
Butte Creek	April 1	Kenneth E. Morgan
North Cow Creek	May 1	James P. Langley
Digger Creek	June 1	Kenneth E. Morgan
Hat Creek	May 1	James P. Langley
Indian Creek	April 1	Charles D. Hand
M. F. Feather River	March 15 May 2	Conrad L. Lahr Jon A. Haman
N. F. Cottonwood Creek	June 1	Kenneth E. Morgan
N. F. Pit River	April 1	John P. Clements
Scott River	April 1 April 4	Keithal B. Dick Lester L. Lighthall
Shasta River	April 1 May 2	Keithal B. Dick Lester L. Lighthall
Surprise Valley	March 19	Kevin L. Dossey
Susan River	March 1	Virgil D. Buechler

ASH CREEK WATERMASTER SERVICE AREA

The Ash Creek service area is in Modoc and Lassen Counties near the town of Adin, about 100 miles northeast of Redding via Highway 299. The major sources of water for the service area are Ash Creek and three tributaries, Willow, Rush and Butte Creeks. Ash Creek rises in Ash Valley in the southeastern part of the service area and flows northwesterly about 18 miles to its confluence with Rush Creek, then southwesterly to the town of Adin, and then westerly to Ash Creek Swamp and the Pit River. Butte and Willow Creeks head in the mountains to the east and flow northwesterly into Big Valley. Butte Creek meets Ash Creek near the head of the Valley at Adin. It meets Willow Creek about 3 miles farther west, near the head of Ash Creek Swamp. The valley floor elevation in this vicinity is about 4,200 feet.

Basis of Service

The rights on this creek system were determined by a court reference and set forth in Decree No. 3670, Modoc County Superior Court, dated October 27, 1947. From 1949 through 1958, Ash Creek was included as a part of Big Valley watermaster service area (no longer served). The Ash Creek service area has been served separately since April 3, 1959.

About 85 percent of the water rights in the service area are in Big Valley, west of the town of Adin. The rest are along the upstream tributaries and in Ash Valley, east of Adin. The part of Big Valley served is about 10 miles long by 6 miles wide, extending from Adin to the confluence of Ash Creek and the Pit River.

The Ash Creek decree establishes the number of priority classes on the individual streams within the service area as follows: Ash Creek - five, Willow Creek - four, Rush Creek - one, and Butte Creek - two. Each of these streams is independently regulated.

Water Supply

The water supply for Ash and Rush Creeks comes mainly from snowmelt, since most of the watershed is between 5,000 and 6,000 feet in elevation. Willow Creek and Butte Creek get much of their water from springs. These creeks normally have enough water to satisfy demands until about June 1, after which the supply decreases rapidly. By the end of June, Ash Creek normally has receded to about 20 cubic feet per second (cfs), and Butte Creek to less than 1 cfs. The flow of these creeks then remains nearly constant for the rest of the season. Records of the daily mean discharge of stream gaging station, Ash Creek at Adin, is presented in Table 7. The flow in Willow Creek above Diversion No. 92 and 93 is presented in Table 8.

ASH CREEK WATERMASTER SERVICE AREA

TABLE 7

1989 Daily Mean Discharge
(In cubic feet per second)

ASH CREEK AT ADIN

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	298	241	58	26	22	21	30
2	275	392	53	21	21	22	28
3	225	416	52	22	20	22	27
4	190	279	51	23	16	20	26
5	213	239	48	29	14	21	28
6	552	221	47	37	17	20	28
7	620	211	44	28	17	37	21
8	875	203	43	27	17	27	22
9	1340	195	44	20	18	28	26
10	888	184	78	23	20	26	27
11	1020	171	83	23	20	25	27
12	661	157	58	31	20	26	23
13	572	150	51	25	17	26	16
14	442	142	37	21	18	27	24
15	374	145	34	21	19	27	18
16	383	141	36	28	21	25	19
17	412	128	37	38	23	22	24
18	419	118	34	29	24	20	33
19	529	111	28	19	20	25	32
20	380	104	26	20	18	25	24
21	355	99	29	23	26	25	24
22	339	103	26	23	22	22	24
23	289	105	29	23	20	25	22
24	391	104	36	17	20	21	21
25	382	93	45	17	20	25	24
26	325	84	32	18	20	26	31
27	262	75	29	16	20	26	27
28	240	67	26	17	20	26	26
29	218	61	29	20	20	28	26
30	196	57	29	26	21	35	29
31	247		32		21	35	
MEAN	449	160	41.4	23.7	19.7	25.4	25.2
AC-FT	27590	9513	2547	1410	1214	1559	1501

ASH CREEK WATERMASTER SERVICE AREA

TABLE 8

1989 Daily Mean Discharge
(In cubic feet per second)

WILLOW CREEK ABOVE DIVERSIONS 92 AND 93

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1			7.8	6.7	5.4	5.1	5.1
2			7.5	6.4	5.4	5.1	5.1
3			7.2	6.4	5.4	5.1	5.1
4			7.0	6.4	5.1	4.9	5.1
5			7.0	7.0	5.1	4.9	4.9
6			6.7	6.7	5.1	4.9	4.9
7			6.7	6.7	5.4	4.9	4.9
8			6.7	7.2	5.4	4.9	4.9
9			7.2	7.0	5.4	4.9	4.9
10			9.2	6.7	5.4	4.9	4.9
11			8.3	6.4	5.4	4.9	4.9
12		14[1]/	7.8	6.4	5.4	4.9	4.9
13		12	7.5	6.2	5.4	4.9	4.9
14		12	7.2	5.6	5.4	4.9	4.9
15		11	7.2	6.2	5.4	4.9	4.9
16		10	7.0	7.0	5.4	4.9	5.6
17		9.6	6.7	6.4	5.4	4.9	6.7
18		9.6	6.4	5.9	5.4	4.9	7.0
19		9.2	6.4	5.9	5.4	4.9	6.2
20		8.6	5.4	5.9	5.4	4.9	5.6
21		8.3	5.1	5.6	5.1	4.9	5.4
22		8.3	4.7	5.6	5.1	5.4	5.4
23		9.6	5.6	5.6	5.1	6.2	5.4
24		9.6	5.4	5.6	5.1	5.6	5.4
25		9.2	6.2	5.6	5.1	5.4	5.4
26		11	6.4	5.4	5.1	5.4	5.4
27		9.6	6.7	5.4	5.1	5.4	5.4
28		8.6	7.0	5.4	5.1	5.1	5.4
29		8.3	7.2	5.4	5.1	5.1	5.4
30		8.1	7.0	5.4	5.1	5.1	5.4
31			6.7		5.1	5.1	
MEAN			6.8	6.1	5.3	5.1	5.3
AC-FT			418	365	324	312	316

1/ No record before April 12.

Method of Distribution

Irrigation from Ash Creek and its tributaries uses numerous small dams to divert flow into systems of ditches. The ditches deliver the water to the various fields for spreading. Wild flooding is the method most used, but some ranchers have checks and ditches and some use pumps to operate sprinklers or to lift water to higher spreading ditches. In some cases, runoff water is captured and reused before it returns to the stream.

1989 Distribution

Watermaster service began in the Ash Creek watermaster service area on April 1 and continued until September 30 with John P. Clements, Associate Engineer, Water Resources, as watermaster.

Ash Creek

Due to the heavy rains in March, full priority water was available during most of April. Most of third priority water was available during May. Flows decreased steadily thereafter, but full second priority was available for the remainder of the irrigation season.

Owners of Akers Ranch sold their lands north of Highway 299 to the State Department of Fish and Game for inclusion into the Ash Creek Wildlife Area. Although the remaining land south of Highway 299 has only stockwater rights (Paragraph 19 of Decree 3670) from Ash Creek, Akers Ranch owners used the Big Valley Drainage Canal to convey pumped ground water to irrigate their fields south of Highway 299. This created some seepage and high water table problems along Highway 299.

Butte Creek

Full priority water was available until about June 1. The flow decreased to about 50 percent of 1st priority and then remained constant for the remainder of the year.

Rush Creek

Full priority water was available for most of May. The flow decreased to about 40 percent and remained constant for the rest of the season.

Willow Creek

Full priority water was available for all of April. The flow decreased to 2nd priority and the upstream diversions were closed about the middle of May. The flow further decreased to about 50 percent of 2nd priority the middle of June but remained fairly constant for the remainder of the season.

BURNEY CREEK WATERMASTER SERVICE AREA

The Burney Creek service area is in eastern Shasta County above and below the town of Burney. The source of water for this service area is Burney Creek, which enters the southern part of the service area and flows through Burney in a northerly direction to the Pit River. The part of the valley served by this stream is about 11 miles long and 2 miles wide and extends both north and south of Burney.

Basis of Service

The rights on this creek system were determined by a court reference and set forth in Decree No. 5111, Shasta County Superior Court, dated January 30, 1926. Watermaster service was provided on the creek from 1926 to 1929 under the Water Commission Act of 1913. The present service area was created on September 11, 1929.

The Burney Creek decree sets forth a rotation schedule of distribution. The water users, however, have found it more beneficial to irrigate on a continuous-flow basis (one priority class plus surplus allotments), which is now normal practice. The water allotted to the Greer-Cornaz Ditch is distributed according to supplemental court decrees.

Water Supply

The water supply for Burney Creek comes from springs and snowmelt. Most of the watershed lies between the elevations of 4,000 and 7,500 on the northwest slopes of Burney Mountain. The creek normally has enough water for all demands until about the middle of June. The supply then gradually decreases until the end of July. For the rest of the irrigation season, runoff from perennial springs keeps the flow nearly constant at about 40 percent of allotments.

The daily mean discharge of Burney Creek near Burney is presented in Table 9. The stream gaging station on Burney Creek is downstream from four points of diversion, so the records do not show all of the available water supply of the creek.

Method of Distribution

Water is diverted from Burney Creek, in most cases, by means of low diversion dams into ditches that convey it to the individual users. Some users are still using flood irrigation, while some of the lower users are pressurizing the water with low lift pumps and sprinkler irrigating.

BUTTE CREEK WATERMASTER SERVICE AREA

The Butte Creek service area is in Butte County a few miles southeast of the City of Chico. The watermaster service area runs about 11 miles along Butte Creek, starting about 4 miles east of Chico and running downstream to the crossing of the Western Canal. It contains about 20,000 acres of valley floor lands at an average elevation of 150 feet.

Basis of Service

The rights on this stream system were determined by a statutory adjudication and set forth in Decree No. 18917, Butte County Superior Court, dated November 6, 1942. The Butte Creek watermaster service area was created on January 7, 1943.

The Butte Creek decree established three priority classes for summer use under Schedule 7, a surplus class inferior to the above rights, and a special class for Hamlin Slough. Schedule 3 of the decree defines the rights for rediversion (Diversion 50) of foreign water delivered into Butte Creek from the West Branch of the Feather River.

On September 18, 1969, the Water Resources Control Board granted permits for the following applications to take water from Butte Creek: application 22321, Gorrill Land Company; 22534, Garrison Patrick; and 22564, Louis C. Camenzind, Jr. These appropriative rights are also under control of the watermaster.

Water Supply

Butte Creek, the major source of water, drains about 150 square miles of the western slope of the Sierra Nevada in the northeasterly part of Butte County above the watermaster service area. The highest elevation in the watershed is about 7,000 feet.

Normally, snowmelt produces sustained high flows in the creek until about the end of June, after which perennial springs above Diversion 50 continue to produce flows of more than 40 cfs. Additional water is imported for distribution from the West Branch Feather River by means of the Hendricks (Toadtown) Canal through De Sabla Reservoir and Powerhouse into Butte Creek.

Records of the daily mean discharge at stream gaging stations in the Butte Creek service area are presented in Tables 10, 11, and 12.

BUTTE CREEK WATERMASTER SERVICE AREA

TABLE 10

1989 Daily Mean Discharge
(In cubic feet per second)

BUTTE CREEK NEAR CHICO

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	270	801	403	213	125	118	106
2	950	812	380	205	122	127	104
3	694	836	366	199	120	128	104
4	469	760	364	206	117	122	102
5	517	729	360	224	117	124	83
6	881	710	358	215	127	121	61
7	746	697	353	203	130	121	55
8	1600	687	351	204	128	121	59
9	3660	674	335	199	125	126	57
10	3390	650	337	189	124	118	54
11	5050	632	332	176	122	114	56
12	1970	611	324	168	128	113	57
13	1420	585	318	164	129	112	56
14	1100	562	316	163	128	112	58
15	923	551	311	153	138	112	53
16	929	537	301	219	140	110	92
17	812	519	293	188	141	110	137
18	981	500	290	168	140	112	170
19	964	485	284	155	137	116	109
20	863	471	269	142	131	114	82
21	773	495	264	140	137	108	76
22	728	499	252	142	133	116	74
23	703	481	280	139	134	108	72
24	1120	510	286	134	132	116	71
25	1760	501	273	133	131	113	72
26	1360	489	255	132	131	114	72
27	1090	457	236	130	130	108	78
28	1000	444	231	126	130	101	74
29	902	427	230	130	126	103	90
30	814	415	232	128	129	106	113
31	829		223		130	109	
MEAN	1267	584	303	170	129	115	81.6
AC-FT	77890	34760	18660	10090	7960	7050	4850

BUTTE CREEK WATERMASTER SERVICE AREA

TABLE 11

1989 Daily Mean Discharge
(In cubic feet per second)

BUTTE CREEK NEAR DURHAM

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	236	878	246	73	30	11	25
2	1100	849	212	73	25	10	11
3	956	910	168	73	23	10	11
4	572	814	161	72	21	10	11
5	652	765	161	77	20	10	11
6	1150	719	153	76	19	10	11
7	973	717	153	74	18	10	11
8	1670	699	159	74	17	10	11
9	3860	682	150	74	16	10	11
10	3720	656	164	76	15	10	14
11	6230	632	172	75	15	10	12
12	2350	611	173	74	16	10	11
13	1650	582	170	73	15	10	16
14	1250	560	155	73	14	10	22
15	1030	518	141	76	13	10	19
16	1010	466	143	116	13	10	52
17	893	443	141	103	17	10	117
18	1100	430	128	81	16	10	151
19	1080	370	125	80	15	10	91
20	962	292	111	80	13	10	56
21	841	331	105	77	12	10	54
22	775	346	101	54	12	10	56
23	751	316	114	40	11	10	51
24	1210	354	114	39	11	10	50
25	1920	345	107	39	11	10	48
26	1570	339	101	37	11	10	48
27	1230	310	86	33	11	10	42
28	1110	291	84	30	11	10	30
29	999	282	81	30	11	10	28
30	890	259	30	31	11	10	49
31	876		74		11	11	
MEAN	1439	526	137	66.1	15.3	10.1	37.7
AC-FT	88490	31270	3396	3933	940	619	2241

BUTTE CREEK WATERMASTER SERVICE AREA

TABLE 12

1989 Daily Mean Discharge
(In cubic feet per second)

TOADTOWN CANAL ABOVE BUTTE CANAL

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		114	115	75	30	47	37
2		114	113	72	32	47	35
3		112	114	71	27	51	37
4		110	117	72	31	43	36
5		110	119	80	30	47	0
6		110	118	75	47	43	0
7		114	89	68	42	44	0
8		114	114	71	43	43	0
9		114	115	65	44	42	0
10		114	114	55	43	40	0
11		117	115	51	44	42	0
12		117	115	48	43	39	0
13		119	115	44	44	41	0
14		119	115	43	40	40	0
15		118	116	41	55	38	0
16		119	115	66	53	37	0
17		118	117	54	56	39	0
18		118	115	51	54	47	0
19		118	110	35	45	43	0
20		116	109	34	54	43	0
21		119	103	41	52	43	0
22		116	101	40	50	39	0
23		120	115	40	51	47	0
24		114	114	39	48	51	0
25		116	106	36	48	51	0
26		117	89	36	50	50	0
27		87	88	36	47	50	0
28		114	89	32	50	42	0
29		115	89	29	47	37	25
30		114	92	33	50	37	17
31			82		46	39	
MEAN		115	108	51.1	45.0	43.3	6.2
AC-FT		6805	6609	3035	2769	2662	371

Method of Distribution

Water is diverted from Butte Creek by pumping and by gravity diversions. Parrott Investment Company, M & T, Inc., Dayton Mutual Water Company, and Durham Mutual Water Company divert relatively large amounts of water by gravity into ditches leading to their individual distribution systems. Various methods of irrigation are in general practice, including contour checks, strip or border checks, basin checks, furrows, wild flooding, and sprinklers. The use of sprinklers has increased in the past few years, especially for orchards.

1989 Distribution

Watermaster service began April 1 in the Butte Creek service area and continued until September 30 with Kenneth E. Morgan, Water Services Supervisor as watermaster.

The water supply for the 1989 irrigation season was below normal. The appropriative rights that are in addition to the Butte Creek Decree were partially filled until mid-June, at which time the rice fields were flooded. On July 17, Adams Esquon Ranch closed their diversion gates for the remainder of the season and irrigated with well water for the balance of the season.

Partial surplus priority was available until mid-June.

COW CREEK WATERMASTER SERVICE AREA

The Cow Creek service area is in central Shasta County in the foothills east of Redding. Water for this service area comes from three major creek systems. They are North Cow Creek (sometimes referred to as Little Cow Creek), Oak Run Creek, and Clover Creek. These creeks flow in a westerly direction to their confluence in the Millville-Palo Cedro area, then south to the Sacramento River east of the City of Anderson. The service area is generally a narrow strip of land on both sides of each of these creeks. In some cases, water is exported from one creek to the other.

Basis of Service

The water rights on each of these creek systems were determined by court references and set forth in separate decrees. Water rights for these creeks were set forth by Shasta County Superior Court decrees as follows:

Creek	Decree No.	Date
North Cow	5804	April 29, 1932
Oak Run	5701	July 22, 1932
Clover	6904	October 4, 1937

The North Cow Creek decree which includes Cedar Creek, sets forth a rotation schedule of distribution. The water users, however, have found it more beneficial to irrigate on a continuous-flow basis, which is now normal practice. Only one priority allotment was provided in each of the Cow Creek service area decrees, except for the Oak Run Creek decree, which contains a surplus allotment.

The Cow Creek watermaster service area was originally created on October 17, 1932, including North Cow Creek and Oak Run Creek water rights. On January 21, 1938, the service area was expanded to include the Clover Creek rights.

Water Supply

Water for this service area comes mostly from springs and seepage, with some early snowmelt runoff. The watershed varies in elevation from 500 to 5,000 feet and consists mainly of low, brushy hills that do not accumulate a heavy snowpack. Relatively large amounts of precipitation during the winter months normally produce substantial seepage and springs that flow through the irrigation season. The creeks normally have sufficient water to supply all demands until late July. The supply then gradually decreases to an average of about 60 to 70 percent of allotments by around mid-September.

The daily mean discharge of North Cow Creek near Ingot is presented in Table 13. The stream gaging station on North Cow Creek is downstream of many

COW CREEK WATERMASTER SERVICE AREA

TABLE 13

1989 Daily Mean Discharge
(In cubic feet per second)

NORTH COW CREEK NEAR INGOT

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1				34	19	4.1	
2				32	17	4.0	
3				31	16	3.8	
4				29	15	3.7	
5				31	13	3.6	
6				31	12	3.6 1/	1/
7				31	11		3.8
8			63 1/	28	10		3.8
9			61	27	9.8		3.8
10			78	25	9.6		3.8
11			76	24	8.3		3.8
12			63	23	8.0		3.7
13			58	22	7.4		3.7
14			52	22	6.8		3.7
15			50	22	6.5		3.7
16			48	22	6.3		5.1
17			47	21	6.1		12
18			46	20	6.0		23
19			45	19	5.8		16
20			44	18	5.4		16
21			43	17	5.0		16
22			42	17	4.7		16
23			48	15	4.5		17
24			46	15	4.3		18
25			44	15	4.3		18
26			43	15	4.3		20
27			41	15	4.3		20
28			40	15	4.2		21
29			40	20	4.2		23
30			39	20	4.2		25
31			36		4.2		
MEAN			46.8	22.5	8.0	3.7	12.5
AC-FT			2227	1338	492	43.8	595

1/ No record before May 8 and from August 7 through September 6.

of the diversions and is used by the watermaster, mainly to indicate changes in flow conditions rather than amounts of water available. Consequently, the records do not show all the available water supply of the creek.

Method of Distribution

Water is diverted from the creeks, in most cases by means of low diversion dams, into ditches that convey it to the place of use. Lateral ditches are then used to spread it over the land. Irrigation has been on a continuous-flow basis instead of by rotation since 1934.

1989 Distribution

Watermaster service for North Cow Creek began on May 1 and continued through October 30 with James P. Langley, Water Resources Engineering Technician II, as watermaster.

Cedar Creek

The flow in Cedar Creek was adequate to supply all demands throughout the season.

Clover Creek

The flow was adequate to supply 100 percent of the one priority through the first part of August. It slowly dropped to 80 percent where it stayed until the middle of September when rain brought it back up to 100 percent for the remainder of the irrigation season.

North Cow Creek

The flow was adequate to supply 100 percent of the one priority through the middle of July when the flow dropped rapidly to 75 percent. It stayed constant until the middle of August when cool weather brought it back up to 100 percent where it stayed for the remainder of the irrigation season.

Oak Run Creek

The flow was adequate to supply 100 percent of first priority for the entire irrigation season.

DIGGER CREEK WATERMASTER SERVICE AREA

The Digger Creek service area is situated in southeastern Shasta County and northeastern Tehama County.

Digger Creek forms part of the boundary between Shasta and Tehama counties. It drains about 45 miles on the western slopes of the Sierra, just west of Lassen National Park. The creek flows west through the town of Manton to its confluence with North Fork Battle Creek. Manton, the only community in the area, lies about 40 miles northeast of Red Bluff.

Basis of Service

The rights to use of the waters of Digger Creek were determined by four court adjudications. The Crooker Ditch, now combined with the Harrison Ditch, may divert all the water in the creek at its point of diversion. Diversions below this point, though defined by decree, are not in the service area.

Four Tehama County Superior Court decrees define the rights included in the service area. These decrees are listed in Table 14.

TABLE 14

DECREES DEFINING DIGGER CREEK WATER RIGHTS

Case	Decree No.	Date Entered
Gransbury v Edwards	2213	August 12, 1899
Wells v Pritchard	2114	May 27, 1913
Harrison et al v Kaler et al	3327	October 16, 1917
Herrick v Forward	4570	February 24,1927

The four decrees have, in effect, divided the water rights on the creek into two groups, the upper users and the lower users. The three upper users irrigate land alongside the stream so that all run-off water returns to Digger Creek. The lower users are located within a 5-square-mile area. Very little runoff from the lower users returns to the creek.

The water rights of the three upper users are absolute and not related to those of lower users; therefore, allotments are not cut proportionally as Digger Creek flows decrease. Since the lower users have to stand all deficiencies, the upper users, in effect, have first priority allotments and the lower users have second and third priority allotments.

Water Supply

Snowmelt contributes to the early runoff, but the summer streamflow is primarily from springs. In average runoff years, there is sufficient flow in Digger Creek, with careful regulation, to satisfy all decreed allotments throughout the irrigation season, but serious deficiencies occur in dry years.

Method of Distribution

Irrigation is done mainly by wild flooding, although border checks and sprinklers are used on a few fields. Small diversion dams are placed in the stream channel to divert water into ditches for conveyance to the fields.

1989 Distribution

Watermaster service on Digger Creek began on June 1 and continued until September 30 with Kenneth E. Morgan, Water Services Supervisor, as watermaster.

Above normal precipitation occurred during March and April, and improved the available water supply. The flow in Digger Creek provided 100 percent of the allotments being filled until late June. The Crooker lateral declined to about 50 percent of third priority during August and September.

HAT CREEK WATERMASTER SERVICE AREA

The Hat Creek service area is in the eastern part of Shasta County, north of Lassen Volcanic Park. Hat Creek, which flows north through the area, is the only source of water in the service area. The place of use is Hat Creek Valley, which is about 20 miles long and 2 miles wide, running north from about 3 miles south of the town of Old Station to the confluence with Rising River. The irrigable lands, which consist primarily of volcanic ash, are interlaced with large outcroppings of volcanic rocks.

Basis of Service

Water from Hat Creek is distributed under provisions of court reference adjudications which resulted in Decree No. 5724, dated May 14, 1924, and Decree No. 7858, dated May 7, 1935, Shasta Superior Court. Decree No. 5724 established irrigation and nonirrigation allotments for 18 periods of rotation between "upper" and "lower" user groups for the period of May 1 to October 28 annually. Decree No. 7858 established three additional water right allotments for continuous irrigation, May 1 through October 28, and allotments for the period October 28 to May 1 annually for all users. These latter rights are not normally supervised by the watermaster.

Watermaster service in the Hat Creek area has been provided in accordance with the decree since 1924. The existing service area was created on September 11, 1929.

Decree No. 5724 defines the allotments in the separate schedules: upper and lower users, requiring 10-day rotations beginning at 6 a.m., May 1, and ending at 6 a.m., October 28. All water rights have the same priority, with the surplus flows distributed according to the users that are on rotation. The upper users' water rights require 154.7 cfs and lower users require 166.5 cfs. The lower users require more because of additional channel loss. When the upper users are being served, the lower users receive a minimum flow for stock water.

Water Supply

The water supply for Hat Creek comes from snowmelt runoff from Lassen Peak and from large springs. Snowmelt creates a high flow during May and June, but most of the summer supply comes from large springs that decrease only slightly in output. Only after a series of dry years does the flow of these springs decrease below 75 percent of total allotments. Records of mean daily discharge of Hat Creek near Hat Creek are presented in Table 15.

HAT CREEK WATERMASTER SERVICE AREA

TABLE 15

1989 Daily Mean Discharge
(In cubic feet per second)

HAT CREEK NEAR HAT CREEK

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	115	145	138	147	136	112	118
2	115	143	142	153	134	111	118
3	113	139	146	161	133	111	118
4	114	136	156	165	131	111	118
5	117	139	167	174	130	111	118
6	127	143	174	168	129	111	118
7	125	150	175	165	128	110	118
8	142	156	183	164	127	111	113
9	280	161	185	167	127	117	109
10	265	165	183	161	121	119	109
11	277	169	167	162	117	119	109
12	204	167	163	162	115	119	109
13	178	166	160	161	114	119	109
14	161	171	154	159	113	119	109
15	154	177	153	166	112	119	109
16	151	180	155	181	114	119	121
17	145	181	163	161	113	118	124
18	144	181	168	152	113	118	132
19	145	179	156	152	112	113	124
20	139	188	156	141	119	110	121
21	138	192	157	139	122	110	120
22	138	169	158	138	122	111	120
23	136	159	163	137	122	114	119
24	138	151	155	136	122	112	119
25	143	145	148	133	122	111	119
26	136	140	148	129	121	110	120
27	134	137	151	129	121	110	120
28	139	135	153	127	121	109	119
29	138	134	154	126	120	115	119
30	135	136	148	136	115	118	119
31	142		145		112	118	
MEAN	153	158	159	152	121	114	117
AC-FT	9380	9390	9770	9030	7450	7010	6980

Method of Distribution

Most irrigation in the area is done by wild flooding. Large heads of water are used to cover the land rapidly, thereby preventing excessive loss from percolation in the porous soil. Diversion dams built across the creek divert water into large ditches. The fields, many of which have checks and borders, are then flooded from the main diversion ditches or from laterals. Several domestic rights are met by pumping directly from Hat Creek. Some ranchers have leveled their fields in recent years, thus improving their irrigation efficiency.

1989 Distribution

Watermaster service on Hat Creek began on May 1 and continued through October 28 with James P. Langley, Water Resources Engineering Technician II, as watermaster.

With cooler weather and rain in May and June, this year's distribution was easier than last year's. The flow was adequate to fill 100 percent of the one priority through the first part of June. It continued to drop through the first part of July, then leveled out at 70 percent for lower users and 80 percent for the upper users for the remainder of the season.

The trial program of switching 24 cfs of the lower users rights with the upper users to ensure a larger minimum flow in the lower stream for fish enhancement continued without any problems. A better understanding of the sharing of water and changing of ditches among the various users by the watermaster eliminated some of last years problems.

INDIAN CREEK WATERMASTER SERVICE AREA

The Indian Creek service area is in north central Plumas County, near Greenville. The major sources of supply in the service area are Indian Creek and two tributaries, Wolf Creek and Lights Creek. Indian Creek, along with minor tributaries, rises in the mountains east of the service area. It flows through Genesee and Indian Valleys and past Taylorsville and Crescent Mills to where it joins the North Fork Feather River. Indian Creek is joined on the north by Lights Creek in southeast Indian Valley and by Wolf Creek in the northwest part of the valley. The major place of use is in Indian Valley, an irregular-shaped area of about 20 square miles. The average elevation is about 3,500 feet.

Basis of Service

The Indian Creek watermaster service area was created on February 19, 1951, to include, with certain exceptions, the water rights set forth in Decree No. 4185, entered December 19, 1950, by the Superior Court of Plumas County, and the rights under Permit 7665 issued in approval of Application 12642 after entry of the decree. The statutory proceeding leading to the decree was entitled, "In the Matter of the Determination of the Rights of the Various Claimants to the Water of Indian Creek Stream System in Plumas County, California."

The service area has been amended twice. Watermaster service has been provided during each irrigation season since the service area was created, and annual reports show the work accomplished. There are 49 water right owners in the service area, with total allotments amounting to 96.715 cfs. Indian Creek decree establishes three priority classes for each major stream within the service area.

Water Supply

The water supply in the Indian Creek service area comes mainly from snowmelt, with springs and seepage maintaining some late summer flows. The flow of Wolf Creek is normally sufficient to supply all allotments until June 1. Indian and Lights Creeks have sufficient flow to supply all allotments until July 1. After these dates, flows decrease throughout the season and by the end of August, only a small part of allotments is available. The mean daily discharge for Indian Creek near Crescent Mills is presented in Table 16.

Method of Distribution

The basic method of irrigation in Indian Valley is wild flooding. Small diversion dams are constructed in the stream channels to divert water into distribution ditches for conveyance to the fields. Small check dams, located throughout the fields in swales, help to spread the water over the ground. There is a limited amount of check and border irrigation in the valley, and a few sprinkler systems are in use.

INDIAN CREEK WATERMASTER SERVICE AREA

TABLE 16

1989 Daily Mean Discharge
(In cubic feet per second)

INDIAN CREEK NEAR CRESCENT MILLS[1/]

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	798	1510	389	187	50	23	23
2	1120	1440	370	166	48	27	24
3	801	1480	365	159	53	21	21
4	678	1350	373	163	53	21	26
5	672	1300	387	189	51	21	25
6	1260	1320	391	186	45	21	26
7	2000	1380	375	189	43	21	30
8	3260	1410	375	258	39	29	26
9	4800	1390	376	233	37	38	27
10	6600	1350	420	183	35	35	25
11	4800	1300	383	156	33	27	25
12	3600	1190	346	145	32	26	28
13	3100	1090	360	129	32	23	25
14	2310	1040	344	108	32	21	24
15	1700	1030	366	94	32	25	27
16	1640	990	335	105	33	24	32
17	1440	943	301	97	36	25	57
18	1420	900	273	86	36	23	65
19	1500	859	246	81	36	24	59
20	1370	818	221	75	33	27	51
21	1220	814	193	79	31	31	45
22	1180	792	175	72	29	29	42
23	1120	715	189	67	27	35	38
24	1520	684	193	64	28	35	39
25	2650	619	183	60	28	34	41
26	2660	564	166	59	29	28	39
27	2100	513	153	57	27	25	31
28	1800	465	203	54	25	27	24
29	1650	431	224	53	25	26	26
30	1450	403	240	52	23	24	31
31	1470		211		21	26	
MEAN	2054	1003	294	120	34.9	26.5	33.4
AC-FT	126300	59680	18100	7150	2150	1630	1990

1/ USGS Station

1989 Distribution

Watermaster service began in the Indian Creek service area on April 1 and continued through October 31 with Charles D. Hand, Water Resources Engineering Associate, as watermaster. The 1989 water season was much better than the last two seasons but was still below average for the Indian Valley watermaster service area.

Wolf Creek

The available water supply of Wolf Creek was adequate to supply 100 percent of the first priority through May; by the end of July the flow was down to 25 percent of the first priority where it remained for the rest of the season.

Lights Creek and Tributaries

The available water supply on Lights and Cooks Creeks was adequate to supply 100 percent of the first and second priority through May; by the end of July there was only enough to supply 20 percent of the first priority and by mid-August there was no available water.

Indian Creek

The available water supply of Indian Creek was adequate to supply all demands through May. By the end of June the supply was adequate to supply 100 percent of the first priority and remained at this level for the duration of the season.

MIDDLE FORK FEATHER RIVER WATERMASTER SERVICE AREA

The Middle Fork Feather River service area is in Sierra Valley on the west slope of the Sierra Nevada in eastern Sierra and Plumas Counties.

Major sources of supply for this service area are the Middle Fork Feather River and its tributaries in the Sierra Valley. The area comprises five major stream groups. Starting in the northeast corner of the valley and proceeding in a clockwise direction, these are: Little Last Chance Creek, Smithneck Creek, Webber Creek and tributaries, West Side Canal, and Fletcher Creek and Spring Channels. The Middle Fork Feather River flows generally north for about 15 miles through Sierra Valley. It then flows out of the valley in a westerly direction near Beckwourth. The major place of use is in Sierra Valley, which is about 15 miles long and 10 miles wide. The average elevation of the valley floor is 4,900 feet.

Basis of Service

The Middle Fork Feather River watermaster service area was created on March 29, 1940, to include, with the exception of certain tributaries and springs, all water rights set forth in Decree No. 3095, entered in the Middle Fork Feather River statutory adjudication proceeding on January 19, 1940, Superior Court, Plumas County. The decree establishes the number of priority classes for each of the major stream systems within the Middle Fork Feather River service area as follows: Little Last Chance Creek - eight; Smithneck Creek - five; West Side Canal Group - five; Fletcher Creek and Spring Channels - three; Webber Creek and tributaries - six; and Sierra Valley Water Company - one.

The service area has been amended three times. Watermasters have provided service during each irrigation season and have prepared annual reports to show the work accomplished since the service area was created.

There are currently 112 water right owners in the service area, with total allotments amounting to 375.639 cfs.

Water Supply

The major water supply in the Middle Fork Feather River service area comes from snowmelt runoff, with minor flow from springs and supplemental stored and foreign water.

Natural flows of Little Last Chance Creek are supplemented by reservoir storage provided by Frenchman Dam, which was built by the Department of Water Resources in 1961. Stored water is released and used as needed under the provisions of a water supply contract.

Smithneck Creek flow is normally sufficient to supply all allotments until about the middle of May. It then decreases until about June 1 when only first and second priority allotments are available for the rest of the season.

The natural flow of Webber Creek is normally sufficient to supply all allotments until the middle of May. At that time, up to 60 cfs is diverted from the Little Truckee River to supplement the flow. This imported water is diverted through the Little Truckee Ditch into Onion Creek and then into Webber Creek, via Cold Stream, for use of shareholders in the Sierra Valley Water Company. This supplemental supply decreases rapidly in July, producing only a small quantity during the latter part of the season.

The West Side Canal streams normally supply all allotments until early June. The flow then gradually declines throughout the season. The flow of Fletcher Creek and Spring Channels normally supplies all allotments until July 1. It then gradually declines for the rest of the season.

Records of the daily mean discharge of Little Truckee Ditch and the Middle Fork Feather River near Portola are presented in Tables 17 and 18.

Method of Distribution

Wild flooding is used by most ranches to irrigate their fields. Small diversion dams are placed in the stream channels to divert the water into individual distribution systems. Check dams are constructed in the swales to implement flooding once the water reaches the fields.

1989 Distribution

Watermaster service began March 15 in the Middle Fork Feather River service area and continued until September 30, with Conrad Lahr, Water Services Supervisor, as watermaster and assisted by Jon Haman, Water Resources Engineering Associate. The available supply in the service area was below average during the season.

Little Last Chance Creek

Frenchman Dam and Reservoir began its twenty-seventh season of operation. A five-year contract concerning storage, distribution, and sale of water was negotiated during 1984 with the Last Chance Creek Water District. Delivery and distribution of water was made in accordance with the provisions of the contract and the instructions of the District's Board of Directors. Deliveries for Little Last Chance Creek Water District started May 2, 1989. A total of 11,894 acre-feet of water was delivered. Jon Haman, performed the duties of watermaster in the District.

Smithneck Creek

The normal two-week rotation schedule for water users below Loyalton was started May 10, 1989 with sufficient water to supply first and 30 percent of second priorities. By mid-August, the flow at this point dropped to less than 10 percent of second priority.

MIDDLE FORK FEATHER RIVER WATERMASTER SERVICE AREA

TABLE 17

1989 Daily Mean Discharge
(In cubic feet per second)

LITTLE TRUCKEE DITCH AT HEAD

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1			19	31	35	6.2	2.4
2			21	33	30	5.9	2.4
3			25	36	37	5.5	2.2
4			30	37	38	5.0	2.0
5			32	40	28	5.0	2.0
6			33	38	27	4.6	1.9
7			33	37	24	6.4	2.0
8			35	36	25	19	2.0
9			39	36	28	10	2.0
10			41	38	22	7.7	2.0
11			38	37	19	6.9	2.6
12			37	36	18	5.9	4.6
13			36	35	17	5.5	3.1
14			35	34	15	4.8	2.7
15			35	34	15	4.6	2.4
16		7.0[1]/	35	33	14	4.1	3.3
17		19	37	33	14	3.7	14
18		22	37	30	13	3.7	11
19		22	35	27	12	2.2	11
20		22	35	24	12	1.7	8.0
21		22	34	22	11	2.7	5.5
22		21	33	22	10	2.6	4.8
23		20	32	36	11	2.4	4.1
24		18	32	46	10	3.1	9.9
25		16	32	45	9.3	1.2	17
26		15	32	45	8.5	1.2	9.6
27		15	32	45	7.4	1.0	6.7
28		16	31	43	7.2	0.8	5.2
29		18	33	41	6.7	1.4	2.5
30		18	32	39	6.4	2.4	0.0
31			30		6.4	2.4	
MEAN		18.1	32.9	35.6	17.3	4.5	5.1
AC-FT		538	2020	2120	1060	277	293

1/ No record before April 16.

MIDDLE FORK FEATHER RIVER WATERMASTER SERVICE AREA

TABLE 18

1989 Daily Mean Discharge
(In cubic feet per second)

MIDDLE FORK FEATHER RIVER NEAR PORTOLA

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	764	369	76	44	24	12	12
2	612	362	74	40	16	12	12
3	764	340	69	36	15	12	12
4	791	316	34	28	13	12	12
5	498	289	24	44	13	12	12
6	443	254	31	60	12	12	12
7	588	235	44	64	12	13	12
8	775	215	45	72	12	13	12
9	1360	196	45	78	12	12	12
10	1820	194	46	91	13	8.7	12
11	1720	190	48	99	13	9.8	12
12	1860	185	50	78	13	9.8	12
13	1430	176	58	68	12	10	12
14	981	152	65	61	7.2	10	10
15	727	147	76	46	7.7	9.8	10
16	574	121	88	26	7.2	10	11
17	593	119	87	29	7.2	10	13
18	641	119	79	36	7.7	8.7	12
19	686	102	61	35	8.2	9.2	12
20	686	61	61	31	9.2	10	12
21	542	72	58	29	8.2	9.7	12
22	423	87	57	28	9.7	9.2	12
23	347	99	54	27	10	9.2	13
24	384	119	52	26	12	8.7	13
25	759	134	49	24	12	6.7	13
26	1440	138	45	21	12	7.2	16
27	1270	132	61	32	12	8.2	19
28	769	117	58	31	9.7	12	21
29	579	100	54	25	10	12	21
30	489	87	53	24	12	12	22
31	423		49		12	12	
MEAN	830	174	56.5	44.4	11.4	10.4	13.3
AC-FT	51050	10350	3470	2640	700	640	790

Webber Creek

Flow in this system decreased to only enough to supply first priority by mid-July. Importation of water from the Little Truckee River began April 16, 1989 to supplement the natural flow of Webber Creek to satisfy all allotments of the Sierra Valley Water Company shareholders (one priority). A total of 6,320 acre-foot of water was delivered through the Little Truckee Ditch during the irrigation season.

West Side Canal Group

Sufficient water was available to supply first and second priorities at the start of the season. The flow decreased by mid-July to satisfy less than 50 percent of second priority.

Fletcher Creek and Spring Channels

This system started the irrigation season with enough water to supply all of first and 50 percent of second priorities. By mid-July, the flow had dropped to an amount capable of meeting only 40 percent of first priorities.

NORTH FORK COTTONWOOD CREEK WATERMASTER SERVICE AREA

The North Fork Cottonwood Creek service area is in Shasta County near the town of Ono, west of Redding. The source of water for this service area is the North Fork of Cottonwood Creek and its two major tributaries, Moon Creek and Jerusalem Creek. The North Fork of Cottonwood Creek flows through the service area in a southeasterly direction to where it joins the other two major forks of Cottonwood Creek and then to the Sacramento River east of the town of Cottonwood. The service area consists of sparsely scattered parcels, some in hilly terrain and some in the valleys.

Basis of Service

The water rights of this creek system were determined by court reference and set forth in Decree No. 5479, Shasta County Superior Court, dated June 9, 1920. The North Fork Cottonwood Creek watermaster service area was created September 11, 1929, although service had been provided intermittently in accordance with the decree since 1924. All water rights have equal priority.

Water Supply

Snowmelt contributes to the flow in the North Fork Cottonwood Creek system during the early part of the irrigation season, and perennial springs provide the major source of supply during the summer and fall months. The flow is normally sufficient to supply all demands except in dry years, when the available supply may be as low as 20 to 40 percent of the decreed allotments.

A record of the daily mean discharge of North Fork Cottonwood Creek near Igo is presented in Table 19. This gaging station is at the lower end of the creek, but gives a general indication of the water supply.

Method of Distribution

The general practice throughout the area is to irrigate by wild flooding. One water user pumps directly from the creek, using a sprinkler system to irrigate his crops. Pumping was necessary at this diversion point because the irrigated land was considerably higher than the creek channel.

1989 Distribution

Watermaster service for North Fork Cottonwood Creek began June 1 and continued through September 30 with Kenneth E. Morgan, Water Services Supervisor, as watermaster.

The available water supply was near normal. A major storm broke the winter drought with 10.94 inches of precipitation recorded in Redding during March.

NORTH FORK COTTONWOOD CREEK WATERMASTER SERVICE AREA

TABLE 19

1989 Daily Mean Discharge
(In cubic feet per second)

COTTONWOOD CREEK NORTH FORK NEAR IGO

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	59	308	93	51	23	4.7	2.7
2	440	300	85	50	20	4.4	2.9
3	137	277	82	49	19	4.3	2.7
4	133	260	79	52	17	6.6	2.6
5	334	247	76	53	17	7.3	2.4
6	255	236	72	53	17	7.6	2.6
7	223	223	69	49	16	7.6	2.4
8	404	196	68	38	16	7.5	2.6
9	880	190	97	36	16	7.6	2.6
10	781	184	155	32	16	7.0	3.0
11	677	178	138	30	16	6.3	3.0
12	481	173	130	30	14	5.9	2.9
13	398	167	125	29	12	6.3	2.6
14	365	161	122	28	13	6.2	2.5
15	343	156	101	28	13	4.6	2.4
16	328	141	61	29	13	2.9	6.7
17	307	114	60	27	13	3.4	74
18	956	102	57	26	12	3.9	95
19	565	99	55	25	8.9	3.9	23
20	443	97	54	26	8.7	3.9	14
21	396	100	54	23	8.6	3.9	12
22	367	93	54	22	8.7	3.9	11
23	454	106	55	21	8.8	4.8	11
24	598	101	57	21	8.6	5.0	11
25	678	99	56	21	8.3	4.8	11
26	520	98	54	22	8.5	4.0	12
27	464	93	54	22	8.4	3.2	13
28	454	86	58	22	6.0	3.1	13
29	362	83	58	25	3.7	2.9	56
30	334	94	57	27	4.2	2.7	77
31	318		55		4.5	2.7	
MEAN	434	159	77.1	32.2	12.2	4.9	16.0
AC-FT	26690	9445	4742	1918	752	303	951

Rainbow Lake did not store water in 1989 due to dam safety restrictions of the Department of Water Resources, Division of Safety of Dams.

The Bee Ditch diversion dam continues to leak so much that water was not available in the ditch most of the season. An attempt was made to repair the dam but was not successful.

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

The North Fork Pit River service area lies along the west slopes of the Warner Mountains in northeastern Modoc County and extends southward from the Oregon border about 45 miles to just south of Alturas.

The North Fork Pit River flows in a southerly direction from the south rim of Goose Lake Basin to its confluence with the South Fork Pit River west of Alturas. The basins of Goose Lake and the North Fork Pit River may be considered completely separate, since the lake has not spilled into the river for nearly 100 years.

Nine small independent streams flowing in a westerly direction from the west slope of the Warner Mountains constitute the major source of water. Three of these (New Pine, Cottonwood, and Davis Creeks) are tributary to Goose Lake. Five are tributary to the North Fork Pit River. From north to south, they are: Linville, Franklin, Joseph, Thoms, and Parker Creeks.

The place of use in the northern half of the area is a relatively long, narrow, sloping strip of land between the east shore of Goose Lake and the foothills of the Warner Mountains. The places of use in the southern half of the area, which are supplied from the North Fork Pit River and its tributaries, are primarily in the narrow valleys bordering the streams. The elevation of the places of use range from about 4,350 feet just below Alturas to about 5,200 feet at the upper portions on some of the creeks.

Basis of Service

Table 20 briefly outlines the five decrees covering the area and presents data on the establishment of watermaster service and water rights.

Water Supply

The water supply comes mainly from snowmelt for all streams in the North Fork Pit River service area except Linville Creek, which, having a relatively small drainage area, is almost entirely spring-fed. After mid-June, the rest of the streams also depend on springs, but diminish rapidly until mid-July, after which the flow remains fairly constant. There are several small reservoirs in the area, but they are used essentially for regulatory storage. The mean daily discharge of various tributaries is presented in Tables 21 through 26, pages 57 to 62.

Method of Distribution

Distribution is accomplished by diversion structures in the main channels diverting into ditches that convey the water to its place of use. Wild flooding from small feeder ditches is the common method of application. There is, however, increasing use of sprinkler systems, some directly from ditches, with

TABLE 20

DECREES AND RELATED DATA - NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

Stream	Modoc County Superior Court Decree No.	Date	Type[a]	Service Area Created	No. of Decree Water Right Owners	Total cfs	Remarks
New Pine Creek	2821	6-14-32	CR	6-22-32	21	22.18	Two priorities.
Cottonwood Creek	2344	5-03-40	CR	12-13-40	5	15.35	When water for Diversion Creek No. 3 is insufficient to reach the area of use, it is diverted at Diversion No. 4.
Davis Creek	2782	6-30-32	CR	7-13-32	19	52.70	Four priorities, 4-1 to 9-15. Some rights vary according to flow available. Most first & second priorities are year-round. One second priority right is for 0.40 cfs export for Roberts Creek.
					2[b]		Appropriative Permit 9825 allows diversion from North Fork Davis Creek and License 10549 to divert from Davis Creek, both for the period from 10-1 to 5-1.
Franklin Creek	3118	9-08-33	CR	9-14-33	4	11.66	Four priorities. The first priority and all second priority rights are year-round, except one which is equal to the sum of all the others (1.46 cfs) and is for the period 9-15 to 3-31 annually. Third and fourth priorities are for 4-1 to 9-30 each year.
North Fork Pit River	4074	12-14-34	S	12-18-39	10	51.73	Five priorities, 4-1 to 9-30. Pit River Dorris Reservoir water diverted through Parker Creek ditch on Parker Creek. Fourth and fifth priorities are special class.
Linville	4074	12-14-39	S	12-18-39	3	8.30	Two priorities.
Joseph	4074	12-14-39	S	12-18-39	6	11.98	Four priorities, 4-1 to 9-30. Diversions on south side of stream, with the exception of No. 26, are on net consumptive use basis.
Parker	4074	12-14-39	S	12-18-39	7	18.07	Four priorities, 4-1 to 9-30. Diversion on Dorris Reservoir shown on North Fork Pit River schedule is made at No. 120, Parker Creek Ditch.
Shields	4074	12-14-39	S	12-18-39	5	7.50	Four priorities, 4-1 to 9-30.
Thoms	4074	12-14-39	S	12-18-39	9	6.44	Three priorities, 4-1 to 9-30.
						9.40	5.0 cfs export to Cedar Creek; and 4.40 cfs export to Stony Canyon.
Gleason	4074	12-14-39	S	12-18-39	4	4.45	Five priorities.

a/ S-Statutory, CR-Court Reference.
b/ Appropriative rights, junior to the decreed rights.

supplemental ground water being added as the surface flow diminishes. Sub-irrigation by the use of large flashboard dams to raise the water level in the channel is practiced along the North Fork Pit River between Parker Creek and Alturas.

1989 Distribution

Watermaster service began in the North Fork Pit River watermaster service area on April 1 and continued through September 30 with John P. Clements, Associate Engineer, Water Resources, as watermaster.

New Pine Creek

Full priority water was available through June. Third priority water could be supplied through mid-July and second priority through mid-August. Only about 50 percent of second priority was available at the end of the season.

Cottonwood Creek

Full priority water was available through May. By mid-June only first priority water was available. Some work was performed on the creek channel between the Noble and Weidner diversions which reduced channel loss and allowed continual stockwater diversions to the two parties. Flow on September 30 was about 0.4 cfs.

Davis Creek

Full priority water (69 cfs) did not occur. Some third priority water was available until mid-June, but the flow decreased steadily for the remainder of the season. Only 50 percent of second priority was available on July 1 and 20 percent on September 1.

Linville Creek

Due to the steady spring flow to the stream, this creek fluctuated very little during the irrigation season. The flow on May 1 was 4.2 cfs; on September 30 the flow was 2.6 cfs. A recorder well was placed at the Capik weir to monitor the flow on a continuous basis.

Franklin Creek

Full priority water was available through mid-May. On July 1, the flow had decreased to about 2.5 cfs and remained constant for the remainder of the season. This stream currently has only two users (Gardner and Chetco).

Joseph Creek

Full priority water was available through mid-June. The diversion to the XL Indian Reservation was closed June 28.

Parker Creek

Full priority water was available through mid-July. The diversion to Dorris Reservoir was closed June 10. During August and September, the upper users combined and rotated their allotments. The flow on August 1 was about 8 cfs or 50 percent of second priority. On September 1, the total flow was about 5 cfs.

Shields Creek

Full priority water was available through mid-July. The flow on August 1 was about 6 cfs and 4 cfs on September 1.

Thoms Creek

Full priority water was available through June. Full second priority was available through July, and only a portion of second priority thereafter.

North Fork Pit River

Full priority water was available through June. After July, minimal natural flow was available. Any significant flow in the river was due to storage released by the XL Indian Reservation.

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 21

1989 Daily Mean Discharge
(In cubic feet per second)

NEW PINE CREEK ABOVE ALL DIVERSIONS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1				32	22	7.5	4.5
2				34	21	7.4	4.4
3				35	19	7.2	4.4
4				37	18	7.1	4.3
5				38	17	6.9	4.3
6				39	17	6.7	4.2
7				38	17	6.6	4.2
8				38	16	6.4	4.1
9				37	16	6.3	4.1
10				36	15	6.1	4.1
11				35	15	5.9	4.0
12				35	15	5.9	4.0
13				34	13	5.8	4.0
14				34	12	5.7	4.0
15			36[1]/	33	12	5.5	3.9
16			37	32	12	5.4	5.5
17			38	31	11	5.3	4.9
18			38	30	11	5.3	4.3
19			37	30	10	5.2	4.1
20			36	29	10	5.1	4.0
21			37	28	9.6	5.0	4.0
22			37	27	9.3	5.0	4.0
23			36	26	9.0	5.0	4.0
24			36	26	8.6	4.9	4.0
25			35	25	8.5	4.8	4.0
26			34	25	8.4	4.8	4.0
27			33	25	8.2	4.8	4.0
28			32	25	8.2	4.8	4.0
29			32	24	8.0	4.7	4.0
30			32	24	7.7	4.6	4.0
31			31		7.5	4.5	
MEAN				31.4	12.6	5.7	4.2
AC-FT				1868	778	349	249

1/ No record before May 15.

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 22

1989 Daily Mean Discharge
(In cubic feet per second)

COTTONWOOD CREEK ABOVE ALL DIVERSIONS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1				12[1/]	2.7	0.7	0.4
2				12	2.6	0.7	0.4
3				11	2.3	0.7	0.4
4				11	2.2	0.7	0.3
5				11	2.0	0.7	0.3
6				11	1.8	0.7	0.3
7				11	1.8	0.6	0.3
8				11	1.7	0.7	0.3
9				10	1.7	0.8	0.3
10				9.8	1.6	0.6	0.3
11				9.5	1.5	0.5	0.3
12				8.8	1.4	0.5	0.3
13				8.1	1.4	0.5	0.3
14				8.1	1.3	0.4	0.3
15				7.8	1.3	0.4	0.3
16				7.5	1.3	0.4	0.7
17				7.2	1.3	0.4	0.9
18				6.6	1.2	0.4	0.6
19				5.4	1.2	0.4	0.4
20				5.4	1.2	0.4	0.4
21				5.0	1.1	0.4	0.4
22				4.7	1.0	0.7	0.4
23				4.2	0.9	0.9	0.4
24				3.8	0.9	0.7	0.4
25				3.5	0.8	0.7	0.4
26				3.3	0.8	0.5	0.4
27				3.2	0.7	0.4	0.4
28				3.0	0.7	0.4	0.4
29				2.9	0.7	0.4	0.4
30				2.7	0.7	0.4	0.4
31					0.7	0.4	
MEAN				7.4	1.4	0.6	0.4
AC-FT				437	84	34	23

1/ No record before June 1.

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 23

1989 Daily Mean Discharge
(In cubic feet per second)

DAVIS CREEK BELOW DIVERSIONS NO. 1, 3, AND 21

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1			27	21	9.3	5.8	4.4
2			24	24	9.7	5.8	4.4
3			23	29	9.7	5.5	4.4
4			25	34	9.3	5.5	4.4
5			29	37	9.0	5.5	4.4
6			32	34	9.0	5.5	4.4
7			42	32	8.6	5.2	4.1
8			45	29	8.3	4.9	4.1
9			47	27	8.0	5.5	4.1
10		37[1]/	51	26	8.0	4.9	4.1
11		42	45	26	7.6	4.9	4.4
12		40	42	24	7.6	4.9	4.4
13		39	39	23	7.6	4.9	4.4
14		38	38	23	7.3	4.9	4.4
15		39	37	23	7.3	4.9	4.4
16		41	35	23	7.3	4.9	4.6
17		44	34	22	7.3	4.6	5.5
18		45	34	20	7.0	4.6	5.8
19		48	34	18	7.0	4.6	6.1
20		50	33	17	7.0	4.4	5.5
21		49	31	16	7.0	4.4	5.2
22		48	30	15	6.7	4.4	4.9
23		40	.0	14	6.7	5.2	4.6
24		42	29	13	6.7	5.8	4.4
25		46	28	13	6.4	6.1	4.4
26		44	26	12	6.4	5.5	4.4
27		34	25	11	6.1	5.2	4.1
28		32	24	10	6.1	4.6	4.1
29		32	23	11	6.1	4.6	4.1
30		29	23	10	5.8	4.4	4.1
31			22		5.8	4.4	
MEAN			32.5	21.2	7.5	5.0	4.6
AC-FT			1997	1263	460	310	271

1/ No record before April 10.

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 24

1989 Daily Mean Discharge
(In cubic feet per second)

LINVILLE CREEK ABOVE ALL DIVERSIONS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1			4.2[1]/	3.0	2.7	2.6	2.6
2			4.2	3.0	2.7	2.6	2.6
3			4.2	3.0	2.6	2.6	2.6
4			4.2	3.0	2.6	2.6	2.6
5			4.0	3.2	2.6	2.6	2.6
6			4.0	3.1	2.6	2.6	2.6
7			4.0	3.0	2.6	2.6	2.6
8			4.0	2.9	2.6	2.9	2.6
9			3.9	2.9	2.6	2.7	2.6
10			3.9	2.9	2.6	2.6	2.6
11			3.9	2.7	2.6	2.6	2.6
12			3.7	2.7	2.6	2.6	2.6
13			3.7	2.7	2.6	2.6	2.6
14			3.7	2.7	2.6	2.6	2.6
15			3.7	2.7	2.6	2.6	2.6
16			3.6	2.7	2.6	2.6	3.0
17			3.6	2.7	2.6	2.6	2.7
18			3.6	2.7	2.6	2.6	2.6
19			3.5	2.7	2.6	2.6	2.6
20			3.5	2.7	2.6	2.6	2.6
21			3.4	2.7	2.6	2.6	2.6
22			3.4	2.7	2.6	3.0	2.6
23			3.4	2.7	2.6	2.9	2.6
24			3.2	2.7	2.6	2.7	2.6
25			3.2	2.7	2.6	2.6	2.6
26			3.2	2.7	2.6	2.6	2.6
27			3.2	2.7	2.6	2.6	2.6
28			3.1	2.7	2.6	2.6	2.6
29			3.1	2.7	2.6	2.6	2.6
30			3.0	2.7	2.6	2.6	2.6
31			3.0		2.6	2.6	
MEAN			3.6	2.8	2.6	2.6	2.6
AC-FT			223	167	160	162	156

1/ No record before May 1.

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 25

1989 Daily Mean Discharge
(In cubic feet per second)

FRANKLIN CREEK ABOVE ALL DIVERSIONS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1			7.0	4.6	2.7	2.5	2.5
2			7.0	4.4	2.7	2.5	2.5
3			7.8	4.4	2.5	2.5	2.5
4			8.4	4.6	2.5	2.5	2.5
5			10	5.1	2.5	2.5	2.5
6			11	5.3	2.5	2.5	2.5
7			12	4.6	2.5	2.5	2.5
8			13	4.4	2.5	2.5	2.5
9			13	4.1	2.5	3.9	2.5
10			17	3.9	2.5	3.3	2.3
11			14	4.1	2.5	2.9	2.3
12			12	4.1	2.5	2.5	2.3
13			12	3.9	2.5	2.5	2.3
14			10	3.9	2.5	2.5	2.3
15			9.8	4.1	2.5	2.5	2.3
16			9.2	5.1	2.5	2.5	2.9
17			8.9	4.6	2.5	2.5	3.3
18		11[1/]	8.6	4.4	2.5	2.5	2.9
19		12	7.8	4.1	2.5	2.3	2.9
20		14	7.5	3.9	2.5	2.3	2.7
21		16	7.0	3.7	2.5	2.3	2.5
22		15	6.7	3.5	2.5	3.1	2.5
23		14	6.7	3.3	2.5	3.9	2.5
24		13	6.7	3.1	2.5	3.3	2.5
25		12	6.2	2.9	2.5	2.9	2.5
26		11	5.8	2.9	2.5	2.5	2.5
27		10	5.8	2.9	2.5	2.5	2.5
28		9.5	6.0	2.9	2.5	2.5	2.5
29		8.4	5.8	2.7	2.5	2.5	2.5
30		7.5	5.3	2.7	2.5	2.5	2.5
31			5.1		2.5	2.5	
MEAN			8.8	3.9	2.5	2.7	2.5
AC-FT			542	234	155	164	151

1/ No record before Apil 18.

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 26

1989 Daily Mean Discharge
(In cubic feet per second)

JOSEPH CREEK BELOW COUCH CREEK

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1			26[1/]	10	2.3	3.3	1.7
2			26	9.9	2.2	3.3	2.4
3			26	9.9	2.0	3.3	3.1
4			25	11	2.0	3.4	3.1
5			25	12	2.0	3.4	3.0
6			24	12	3.3	3.3	3.0
7			24	12	6.3	3.1	2.8
8			23	8.1	6.1	3.3	3.0
9			25	8.5	6.1	6.6	3.1
10			28	8.3	6.1	3.8	3.3
11			24	7.9	6.1	3.8	3.4
12			21	7.6	6.1	3.3	3.5
13			20	7.6	5.9	3.3	3.8
14			17	7.2	5.7	3.1	4.1
15			16	6.9	5.5	3.1	2.7
16			15	7.9	5.7	3.1	3.3
17			15	6.9	5.3	3.1	4.1
18			15	6.7	4.9	3.0	4.7
19			15	5.7	4.6	3.1	3.3
20			14	5.9	4.1	3.1	1.9
21			14	5.3	3.5	3.1	1.7
22			13	5.1	3.3	4.7	1.6
23			13	4.9	3.1	6.6	1.6
24			12	4.9	3.1	2.1	1.6
25			12	4.7	3.0	2.0	2.0
26			12	4.6	3.0	1.9	2.2
27			11	4.4	3.0	1.8	2.3
28			11	3.5	3.1	1.7	2.4
29			11	2.3	3.1	1.7	2.4
30			10	2.4	3.3	1.5	2.4
31			10		3.3	1.6	
MEAN			17.8	7.1	4.1	3.1	2.8
AC-FT			1097	425	252	193	166

1/ No record before May 1.

SCOTT RIVER WATERMASTER SERVICE AREA

The Scott River service area is in western Siskiyou County and consists of five tributaries of the Scott River: French Creek, Shackleford Creek, Sniktaw Creek, Oro Fino Creek, and Wildcat Creek. Before 1980, French Creek and Shackleford Creek were separate service areas. Wildcat Creek came into service in 1981, and the four tributaries to the Scott River were combined to form the Scott River watermaster service area.

Scott River Service Area 1989 Distribution

Watermaster service began in the Scott River watermaster service area on April 1 and ended on September 30 with Keithal B. Dick, Water Resources Technician II, as watermaster. Lester Lighthall was called into service on April 4 and finished on August 20. Mr. Lighthall's services were needed to assist Mr. Dick because of the increased need for regulation.

French Creek

The French Creek service area is in Scott Valley, western Siskiyou County, near the town of Etna. The major sources of water supply are French, Miners, and North Fork French Creeks. French Creek flows northeast through the center of the service area. Miners Creek begins east of the headwaters of French Creek and flows in a northerly direction, joining French Creek about three miles above its confluence with Scott River. North Fork French Creek begins north of the headwaters of French Creek and flows easterly, joining French Creek one mile upstream from the confluence with Miners Creek.

The service area encompasses the entire agricultural area within the French Creek Basin and some additional lands along the west side of the Scott River near the town of Etna. It is about 0.5 mile wide and 5 miles long, with the main axis and drainage running from south to north. Elevations of the agricultural area range from about 3,200 feet at the south to about 2,800 feet at the confluence of French Creek and Scott River.

Basis of Service. The rights of this creek system were determined by court reference and set forth in Decree No. 14478, Siskiyou County Superior Court, dated July 1, 1958.

The French Creek watermaster service area was created on November 19, 1968, and service was started on July 1, 1969.

Water is distributed according to three schedules: North Fork French Creek, with three priorities; Miners Creek with three; and the French Creek, Horse Range Creek, Paynes Lake Creek, and Duck Lake system, with seven.

These schedules are independent of each other with two exceptions: (1) Miners Creek users have the option of diverting from French Creek when water is not available from Miners Creek, and (2) maximum allowable flows are specified at given points, regardless of the source of the water.

One peculiarity of this decree is that it included two water rights that have a specified amount, which are subject to the exclusive control of the other owners of the ditch. This portion of the decree is under review by the Department's legal staff.

Water Supply. The water supply comes from snowmelt runoff, springs and seepage, and occasional summer thundershowers.

The watershed of French Creek contains about 32 square miles of heavily forested, steep mountainous terrain of the easterly slopes of the Salmon Mountains. It varies in elevation from about 7,200 feet along its west rim to about 3,200 feet at the foot of the slopes bordering French Creek Valley. Snowmelt runoff is normally sufficient to supply all demands until about the middle of July. The daily mean discharge of French Creek above North Fork French Creek is presented in Table 27.

French Creek 1989 Distribution

The season started on French Creek with all users receiving full rights. These flows continued above 100 percent of all priorities until July 15. By August 20, distribution was down to second priority users only and continued at that rate until September 30, the end of the irrigation season.

Releases were started from Smith Lake to the North Fork Ditch users on July 15.

Shackleford Creek

The Shackleford Creek service area is in western Siskiyou County near the town of Fort Jones in Scott Valley. The major sources of water for this service area are Shackleford Creek, which flows through the central part of Quartz Valley, and its tributary, Mill Creek, which rises east of the headwaters of Shackleford Creek. Evans Creek, a small tributary to Mill Creek, enters from the south.

The service area encompasses the Quartz Valley region of Scott Valley and includes the entire agricultural area within the Shackleford Creek Basin. It is about 2 miles wide by 6 miles long, with the main axis and drainage running from south to north. Elevations on the agricultural area range from about 3,100 feet at the south to about 2,650 feet at the confluence of Shackleford Creek and Scott River.

Basis of Service. The Shackleford Creek watermaster service area was created on November 6, 1950. Water is distributed under the provisions of a statutory adjudication which resulted in Decree No. 13775, Siskiyou County Superior Court, dated April 3, 1950.

The allotments are defined in four separate schedules. The upper and lower Shackleford Creek groups each have seven priority classes. The upper Mill Creek group and lower Mill Creek group each have three priority classes.

SCOTT RIVER WATERMASTER SERVICE AREA

TABLE 27

1989 Daily Mean Discharge
(In cubic feet per second)

FRENCH CREEK ABOVE NORTH FORK FRENCH CREEK

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1			54	49	19	3.9	2.6
2			54	59	16	3.9	3.1
3			59	64	16	3.6	3.1
4			67	83	16	3.6	2.6
5			1 1/	72	15	3.3	2.6
6				67	13	3.3	2.6
7				64	12	3.1	3.1
8				62	11	3.4	3.2
9				54	11	4.1	3.3
10				51	11	4.1	3.6
11		90 1/	86 1/	51	9.8	3.6	3.4
12		88	73	51	7.5	3.3	3.5
13		93 1/	67	49	8.8	3.1	3.5
14			64	44	8.8	2.8	3.4
15			64	46	8.5	2.8	3.4
16			64	44	8.2	2.8	3.4
17			67	37	8.2	2.6	17
18			64	33	8.2	2.6	26
19			56	31	6.9	3.1	25
20			54	28	6.9	2.6	19
21			54	25	6.9	2.8	20
22			56	25	6.6	2.8	14
23		88 1/	54	25	6.0	3.1	11
24		79	51	25	5.5	2.8	9.1
25		67	47	23	5.8	2.8	8.3
26		60	47	22	5.5	2.6	8.0
27		55	49	22	5.0	2.6	8.1
28		49	46	20	4.1	2.6	7.6
29		48	42	22	3.6	2.5	7.6
30		54	40	20	3.6	2.6	7.6
31			42		3.6	2.6	
MEAN			56.8	42.3	9.0	3.1	8.0
AC-FT			2819	2515	551	189	473

1/ No record before April 11, between April 13 to April 23, and between May 5 to May 11.

The decree also includes two storage rights upstream of all diversions. This stored water is released late in the irrigation season to Shackleford Creek for use by owners.

Water Supply. The water supply for Shackleford Creek comes from snowmelt runoff, springs and seepage, and supplemental stored water released from Cliff and Campbell Lakes, near the headwaters of Shackleford Creek.

The watershed of the Shackleford Creek stream system contains about 31 square miles, located in the heavily forested, steep mountainous terrain of the northeasterly slopes of the Salmon Mountains. It varies in elevation from about 7,000 feet along its west rim to about 3,000 feet at the foot of the slopes bordering Quartz Valley. Snowmelt runoff is normally sufficient to supply all demands until the middle of July. The supply then usually decreases until the first part of August when water is released from Cliff and Campbell Lakes to maintain sufficient flow in the Shackleford Ditch.

Method of Distribution. Irrigation is accomplished primarily by wild flooding of permanent pasture and alfalfa fields. Water is distributed by ditches and laterals to the places of use. Shackleford Ditch, the largest of these ditches, has a length of about 6 miles and a capacity of about 12 cfs.

Shackleford Creek 1989 Distribution

The season started on Shackleford Creek with all users receiving full rights. The Shackleford Ditch was not opened this year leaving only second priority water.

Releases were started from Campbell Lake to the Shackleford Ditch on August 17.

Sniktaw Creek

The Sniktaw Creek service area is in western Siskiyou County, seven miles west of the town of Fort Jones in Scott Valley. It encompasses an agricultural area about three miles long and one mile wide, running from south to north. Elevations in the Sniktaw watershed range from 6,700 feet in the southwest to about 2,650 feet at the confluence of Sniktaw Creek and Scott River.

Basis of Service. The Sniktaw Creek service area was added to the Scott River watermaster service area on April 1, 1981. Water is distributed under the provisions of a statutory adjudication which resulted in Decree No. 30662, Siskiyou County Superior Court, dated January 16, 1980.

The allotments are defined in the Scott River Decree, Schedule B 38, which has three priority allotments.

Water Supply. The water supply for Sniktaw Creek comes from snowmelt, springs, and seepage. Water from Shackleford Creek (Diversions 3, 17, 19, 20, and 21) supplements available water in Sniktaw Creek.

Return water from Heide's Shackleford Creek Ditch, Diversion 3, commingles with natural flow of Sniktaw Creek. After leaving the Heide property and entering Sniktaw Creek, it is allotted as set forth in Schedule B38 (Sniktaw Creek) from Diversions 665 to 679.

Heide may use tailwater from Shackleford Creek Ditch, Diversion 3, for irrigation of 27 acres under License 10875 issued on Application 22882 for use on former Indian lands. The right may be exercised only at times that Heide is receiving water from Shackleford Creek Ditch, Diversion 3, or at times that all Sniktaw Creek allotments are being filled.

Sniktaw Creek 1989 Distribution

All priorities were filled until June 25; by July 10, the water supply had receded to 50 percent of second priority. The Hiede Ditch from Shackleford Creek diverted water all season. This was because no water was diverted from Shackleford Ditch during the 1989 season.

Wildcat Creek

The Wildcat Creek service area is in western Siskiyou County near the town of Callahan. The major sources of water are Wildcat Creek, which flows through the service area, foreign water imported from Jackson Creek, Grizzly Creek and Camp Gulch.

Basis of Service. The Wildcat Creek watermaster area was started May 1, 1980. Water is distributed under a statutory adjudication that resulted in Decree No. 30662, Siskiyou County Superior Court, dated January 16, 1980. The allotments are defined in the Scott River Decree, Schedule B 10.

Method of Distribution. Irrigation is done mainly by wild flooding of permanent pasture. Water is distributed by ditches and laterals to the place of use.

Wildcat Creek 1989 Distribution

The water supply was normal. Import water from Sugar Creek and Jackson Creek help supply water to the Kerrigan Ranch, and runoff from the Kerrigan Ranch helped supply the Struckman Ranch. Recorders were installed on the Parshall flumes at points A and B, described in the decree. By August 15, the natural flow of Wildcat Creek was down to 1.0 cfs. Recorders were installed on the Jackson Creek Ditch and at Kerrigan's diversion from Wildcat Creek to determine the natural flow of Wildcat Creek.

Oro Fino Creek

The Oro Fino Creek watermaster service area is in southwestern Siskiyou County near the town of Greenview. It encompasses an agricultural area about 5 miles long and 0.5 mile wide, running from south to north. Elevations along Oro Fino Creek range from 2,900 feet near the headwaters to 2,700 feet at the confluence of Oro Fino Creek and the Scott River.

Basis of Service. The Oro Fino Creek service area was added to the Scott River watermaster service area on July 1, 1984. Water is distributed under the provision of the statutory adjudication which resulted in Decree 30662, Siskiyou County Superior Court, dated January 6, 1980.

Water Supply. The water supply for Oro Fino Creek above Diversion 606 is derived from Kidder Creek. Springs feed Oro Fino Creek below Diversion 607. Allotments are diverted from underflow by means of offset wells or sumps at Diversions 606, 606a, 611, and 612. The allotments at Diversions 607, 608, 609, 610, 613, 613a, 614, 615, and 616 may be diverted, at the option of the claimant, from surface flow or from underflow by means of offset wells or sumps a combination of both with the provision that when surface flow in the creek (at the county road at the O. Lewis property) recedes to 3 cfs, the percentage or amount of the surface flow reaching the point of diversion of each of the following claimants shall be bypassed at the claimant's lower property line:

> Friden 51 percent, O. Lewis 96 percent, and Luckensmeyer all flow in excess of 1.31 cfs.

The ground water table along Orb Fino Creek is recharged mainly by Kidder Creek Diversions 446 and 448 which supply surface water to the Foster and Friden lands. Kidder Creek streamflow for these diversions is mainly snowmelt runoff.

Oro Fino Creek 1989 Distribution

The water supply of Oro Fino was normal. No regulation was required this season.

SHASTA RIVER WATERMASTER SERVICE AREA

The Shasta River service area is in the central part of Siskiyou County. Willow Creek and Cold Creek, formerly in the Klamath River watermaster service area, were incorporated into the Shasta River watermaster service area in 1983.

The water supply comes from Shasta River and its several tributaries. The upper reaches of the service area are served by two groups of tributaries. One group, comprising Boles, Beaughan, Carrick, and Jackson Creeks, rises on the northwestern slopes of Mount Shasta. The other group, consisting of Dale and Eddy Creeks, and Shasta River west of Interstate 5, rises on the eastern slopes of the Trinity Mountains. All these streams join the mainstem Shasta River above Lake Shastina (Dwinnell Reservoir) near the town of Weed. As the Shasta River flows northward from Lake Shastina to its confluence with the Klamath River, north of Yreka, it is joined by three major tributaries. Parks Creek, rising on the eastern slopes of the Trinity Mountains, enters from the west near the town of Gazelle. Big Springs Creek, from Big Springs Lake, enters from the east about a mile below Parks Creek. Little Shasta River, rising on the slopes of the mountainous area between Butte Valley and Shasta Valley, enters from the east near the town of Montague.

Shasta Valley is about 30 miles long and 30 miles wide. In the center of the valley are many small, cone-shaped, volcanic hillocks that divide the area into separate parts. Because of these volcanic formations, only about 141,000 acres of about 507,000 acres in the valley are irrigable. The valley floor elevation averages about 3,000 feet.

Willow Creek is in Siskiyou County, about 10 miles northeast of Montague. It is the major source of water to the service area and rises on the west slope of the 7,800-foot Willow Creek Mountain. It flows northwest through about 11 miles of rolling hills to its confluence with the Klamath River. The Willow Creek area is about 8 miles long by 1 mile wide and varies in elevation between about 2,600 and 4,000 feet.

Cold Creek is just south of Copco Lake, a hydroelectric power reservoir on the Klamath River in the extreme northern part of Siskiyou County. Yreka is 30 miles southwest of the Cold Creek stream system. Elevations within the Cold Creek watershed range from 2,900 feet to about 6,500 feet.

Basis of Service

The Shasta River watermaster service area was created on March 1, 1933. The appropriative water rights on this stream system were determined by a statutory adjudication that resulted in Decree No. 7035, Siskiyou County Superior Court, dated December 29, 1932.

The decree lists the water rights of the entire stream system by the names of the users. The rights supervised by the watermaster are broken down into eight separate schedules. These are: Shasta River above its confluence with Big Springs Creek - 43 priorities; Boles Creek - 20 priorities; Beaughan Creek - 5 priorities; Jackson Creek - 7 priorities; Carrick Creek - 13 priorities;

Parks Creek - 25 priorities; Shasta River below its confluence with Big Springs Creek and Big Springs Creek and tributaries - 29 priorities; and Little Shasta River - 7 priorities. Additional schedules include Willow Creek, Yreka Creek, and miscellaneous independent springs, gulches, and sloughs, but these are not included in the service area.

Montague Water Conservation District has appropriative rights for storage of Shasta River and Parks Creek water in Lake Shastina. By agreement with the District, five nearby downstream users receive water from storage in lieu of their decreed continuous flow allotments. The watermaster handles the reservoir releases for these users. A peculiarity of the Shasta River decree is that it defines only appropriative rights and excludes a number of riparian users on the Lower Shasta River. Owners of these riparian rights are subject to beneficial use and are regulated during periods of short water supply by the watermaster.

Water Supply

The water supply for Shasta Valley comes from snowmelt runoff, springs and underground flow, and occasional summer thundershowers. In several parts of the stream system, the springs from underground flow are enough to supply most allotments throughout the season. Much of the underground flow comes from the northern slopes of Mount Shasta, which rises to 14,162 feet at the south end of Shasta Valley. Although the snowpack on Mount Shasta is usually heavy, there is little surface runoff.

Parks Creek, Upper Shasta River, and Little Shasta River get much of their water from snowmelt runoff, usually enough to supply allotments until the middle of May.

Beaughan Creek, Carrick Creek, Shasta River from Boles Creek to Lake Shastina, Big Springs, and Lower Shasta River have enough runoff from springs to supply many of the allotments throughout the season.

Records of the daily mean discharge at several stream gaging stations in the Shasta River service area are in Tables 28 through 31, pages 75 through 78. The daily mean storage in Lake Shastina is in Table 32, page 79.

Method of Distribution

Irrigation of permanent pasture and alfalfa lands is mainly by wild flooding. Much of the return water is recaptured and used on lower pasture lands. Sprinkling systems are used for irrigating some alfalfa and grain lands. Water is routed by diversion dams and then carried by ditch or canal to the place of use. The largest and longest canal in the area is the Edson-Foulke Yreka Ditch, which has a capacity of about 60 cfs and a length of about 14 miles. Water is also supplied to ditch systems by pumped diversions, the three largest belonging to two irrigation districts and a private water users' association. Some riparian lands are also served by pump diversions.

There are many privately-owned storage reservoirs in the area. Water from these reservoirs supplements continuous-flow allotments.

Because of their large rights, the watermaster's close surveillance of Grenada and Big Springs Irrigation Districts and Shasta River Water Users Association is very important, particularly in dry years. Control of releases from Montague Water Conservation District's Dwinnell Reservoir (Lake Shastina) is another responsibility of the watermaster. This includes measurement of deliveries of stored water to users just below the dam. Control of releases from Hammond Lake is also a duty of the watermaster as of 1989.

1989 Distribution

Watermaster service began April 1 in the Shasta River wastermaster service area and ended September 30 with Keithal B. Dick, Water Resources Technician II, as watermaster. Lester L. Lighthall was called into service on May 2 and finished on September 4. Mr. Lighthall's services were needed to assist Mr. Dick because of the record low water supply, which was less than 90 percent of normal, and the unusually dry conditions during the first part of the year.

Parks Creek

Flows were enough to fill the irrigation demand and provide excess to Dwinnell Reservoir until May 19. Flows decreased and third priorities were out by June 1. Flows continued to decrease, with 2.2 cfs by the end of September.

Upper Shasta River

Regulation was required from April 1. Rains occurred in mid-April, and the flow in upper Shasta River was enough to fill all priorities until June 22. Flow decreased to 28 percent of third and fourth priorities in August and remained near that level until the last part of September. Lower priorities below the Yreka Ditch received return flow and inflow from springs after June 16.

The Hammond Lake Water Users Association owners of the Hammond Reservoir was added to the Shasta River watermaster service area in 1988. The 348-acre-foot reservoir has storage licenses 5261 and 6531 for water diverted from the North Fork Sacramento River. The stored water is released to the Shasta River and then diverted into diversions 3, 4, 5, and 6. The releases are measured at a recently installed weir located downstream from the reservoir. The Hammond Ranch has been subdivided over the past 20 years and, as a result, the present place-of-use maps are no longer accurate. The Association is in the process of updating these maps. The Hammond Reservoir filled and remained full until June 27 and releases started June 23.

Boles Creek and Shasta River to Lake Shastina (Dwinnell Reservoir)

Boles Creek and this portion of Shasta River are operated as one stream under a long-standing oral agreement among the water right owners. The water is distributed on a correlative, equal-priority basis. Water was set to 100 percent of all rights on July 1. Flows decreased to 75 percent of rights by mid-August and remained between 70 and 75 percent for the rest of the season.

Beaughan Creek

With close regulation of the upper users, all priorities were satisfied for the entire season.

Carrick Creek

Carrick Springs supplied enough water to satisfy all 13 priorities for the entire season with close regulation.

Little Shasta River

There was less than average snowmelt runoff this season on the Little Shasta River. The flows were sufficient to fill sixth priority in mid-April, then declined to 20 percent of sixth priority on May 20. On July 1, the available flow provided 40 percent of fifth priority, declined to 20 percent of fifth priority by late July, and remained at that level until September 30.

Dwinnell Reservoir

Storage in Dwinnell Reservoir on April 1 was 1,780 acre-feet and increased to 29,600 acre-feet by May 12. On September 30, storage was down to 1,810 acre-feet. By agreement with the Montague Water Conservation District, owner of Dwinnell Reservoir, water users on Shasta River below the reservoir received stored water on demand.

Deliveries to Natural Flow Water Right Owners
Below Dwinnell Reservoir - 1989

Name of Water Right Owner	Allotment (in acre-feet)	Amount Delivered from Dwinnell Reservoir (in acre-feet)
J. N. Taylor	1,200	1,200
Flying L Ranch	198	198
Hole-in-the-Ground Ranch	596	596
Seldom Seen Ranch	924	924
Hidden Valley Ranch	464	464
	3,382	3,382

Big Springs Lake

Big Springs Irrigation District used their own wells, and no water was received from Big Springs Lake. An agreement between E. J. Louie, Newton, and Montague Water Conservation District was made during the winter of 1986. They agreed that when the flows of Big Springs recede from 17.5 cfs to 10.0 cfs, Montague Water Conservation District would do the following:

- Turn off the Basey pumps until the flow of Big Springs was 17.5 cfs or pay Newton the additional power cost to use his own pumps.

- If flows of Big Springs fall below 10.0 cfs, Montague Water Conservation District will shut off the Basey pumps until flows return to above 10.0 cfs.

From April 1 until the first of September, daily observations were made. On April 5, Montague Water Conservation District was required to shut off one Basey pump; eventually, all three Basey pumps had to be turned off for a short period.

Lower Shasta River

The flows in Lower Shasta River were enough to supply all priorities until July 20. On this date, Grenada Irrigation District had to shut off one pump. Water supply fluctuated at times and Grenada Irrigation District pumps had to operate intermittently.

Willow Creek (North of Montague)

Basis of Service. Willow Creek has had a long history of litigation. The present basis of service was initiated in 1949 when the Department of Public Works, Division of Water Resources was asked to referee a civil suit. The matter was not finalized by a decree until 1972. The issues involved were reopened in 1971, and by Decree No. 24482, dated April 28, 1972, the Siskiyou County Superior Court appointed the Department of Water Resources to supervise distribution of water in accordance with an earlier agreement between the users which defined their respective rights. Accordingly, Klamath River Watermaster Service Area (formerly Willow Creek Watermaster Service Area) was created on June 22, 1972, and service began on July 1, 1972.

There are three water users in the service area. Distribution is on a fractional basis until the flow drops to a specified amount below the upper two users. At that time, the total flow is rotated between the upper two users.

Water Supply. The main source of water for the Willow Creek stream system is from snowmelt. Runoff from the snowmelt begins late in March or early April and is almost entirely gone by June. Thereafter, the streamflow decreases rapidly until about July 25. From then until the rainy season begins, the flow remains at a low-flow stage sufficient to provide domestic and stock-watering purposes to the two upper users.

Method of Distribution. Both sprinkler and flood irrigation are used in the Klamath River service area. The upper water user has the option of using gravity diversions for either flood or sprinkler irrigation. The middle user relies entirely on runoff from the upper user's flood irrigation. The lower user in the area uses both flood and sprinkler irrigation during the early season when the supply is abundant. As the supply dwindles, the remaining water is pumped from a sump to the sprinkler system.

1989 Distribution. Water was so low by August 1, all remaining flows were rotated by upper users.

Cold Creek

Basis of Service. A statutory adjudication of Cold Creek in 1978 ordered the Department of Water Resources to provide watermaster service at Diversions 2, 3, and 4, and at the division weir on the Silva-Lennox Ditch. Watermaster service began April 1, 1981.

Water Supply. The water supply of the Cold Creek stream system satisfied requirements until July.

Method of Distribution. Both sprinkler and flood irrigation are used in Cold Creek service area.

1989 Distribution. Flow is from springs and remained very constant all season. A recorder was operated at the automatic split.

SHASTA RIVER WATERMASTER SERVICE AREA

TABLE 28

1989 Daily Mean Discharge
(In cubic feet per second)

SHASTA RIVER NEAR YREKA[1/]

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	178	312	166	111	37	24	41
2	235	286	157	98	41	30	28
3	219	292	133	82	47	31	26
4	204	274	105	137	42	25	28
5	235	274	88	119	37	21	29
6	328	255	79	143	38	21	36
7	355	237	69	135	41	17	33
8	372	232	94	117	32	27	31
9	672	222	314	96	20	124	30
10	756	217	347	85	16	90	30
11	636	215	354	75	37	49	33
12	532	180	305	50	30	26	35
13	453	168	224	64	29	26	33
14	387	161	187	49	28	36	48
15	345	153	152	50	52	28	43
16	355	134	87	60	41	35	45
17	360	132	94	48	29	33	197
18	347	138	85	55	27	30	368
19	324	136	75	47	27	41	289
20	301	141	72	38	18	28	202
21	300	174	67	34	12	22	176
22	329	207	61	33	14	23	156
23	310	199	65	27	15	24	151
24	303	256	80	32	23	28	150
25	318	261	83	36	26	30	144
26	306	252	84	38	22	37	142
27	288	228	72	36	14	36	140
28	266	206	73	34	12	43	144
29	249	191	117	40	12	43	146
30	238	170	132	39	11	48	158
31	293		122		12	62	
MEAN	348	210	134	66.9	27.2	36.7	104
AC-FT	21410	12500	8220	3980	1670	2260	6170

1/ USGS Station

SHASTA RIVER WATERMASTER SERVICE AREA

TABLE 29

1989 Daily Mean Discharge
(In cubic feet per second)

SHASTA RIVER NEAR EDGEWOOD

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	35	144	72	35	11	7.0	9.9
2	58	132	61	35	10	6.1	10
3	42	121	61	45	8.9	6.4	11
4	37	109	70	81	8.3	7.1	12
5	126	101	98	64	8.5	6.8	11
6	157	102	119	63	8.8	5.8	11
7	112	143	124	60	6.8	5.6	10
8	188	161	133	54	6.0	13	8.9
9	1850E	163	197	49	5.9	16	9.9
10	1150E	170	273	46	6.5	10	10
11	1110E	143	155	46	8.3	8.5	8.5
12	531E	135	115	45	7.4	8.0	8.6
13	363	129	94	43	6.5	9.0	8.2
14	255	149	77	43	5.6	9.4	8.6
15	204	177	63	49	5.6	8.3	9.2
16	297	177	56	45	6.7	8.5	13
17	220	176	55	37	6.8	7.9	35
18	216	178	58	32	7.5	8.5	41
19	178	188	51	28	6.9	8.4	21
20	158	188	47	24	6.2	7.9	18
21	157	220	43	19	7.4	8.2	19
22	148	166	45	14	7.4	8.7	18
23	139	180	68	13	7.7	8.1	18
24	157	120	55	13	8.5	7.9	17
25	240	92	55	12	8.0	7.4	16
26	184	79	44	13	7.3	7.7	16
27	158	77	40	12	7.1	8.3	16
28	152	71	44	9.6	7.1	8.6	17
29	138	65	53	11	7.7	7.7	17
30	129	76	41	12	7.2	9.9	19
31	152		36		5.8	10	
MEAN	292E	138	80.7	35.1	7.4	8.4	14.9
AC-FT	17930E	8196	4965	2088	455	517	888

E - Estimated

SHASTA RIVER WATERMASTER SERVICE AREA

TABLE 30

1989 Daily Mean Discharge
(In cubic feet per second)

PARKS CREEK ABOVE EDSON-FOULKE YREKA DITCH

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1				11	4.5	2.3	1.4
2				10	4.2	2.3	1.3
3				7.9	3.7	2.3	1.2
4				7.6	3.0	2.2	1.3
5				7.5	3.0	2.2	1.5
6				7.5	3.1	2.2	1.5
7				7.3	3.1	2.2	1.5
8				7.3	3.2	2.1	1.5
9				7.2	3.4	2.1	1.5
10				6.9	3.5	2.1	1.6
11				6.9	3.4	2.1	1.7
12				6.8	3.3	2.3	1.7
13				6.8	3.0	2.3	1.7
14				6.8	2.9	2.4	1.7
15			24 1/	6.7	2.8	2.3	1.8
16			24	6.7	2.7	2.3	2.1
17			22	6.7	2.7	2.4	6.2
18			21	6.6	2.6	2.3	7.5
19			21	6.5	2.6	2.2	7.2
20			19	6.5	2.6	2.1	7.3
21			17	6.4	2.5	1.9	5.1
22			16	6.4	2.5	1.9	4.3
23			16	6.3	2.4	1.8	4.2
24			15	6.2	2.3	1.8	3.2
25			15	6.0	2.2	1.8	4.0
26			15	5.8	2.7	1.7	3.0
27			15	5.4	2.3	1.7	2.8
28			16	5.5	2.4	1.6	2.6
29			17	5.4	2.7	1.6	2.2
30			13	5.0	2.5	1.5	2.2
31			12		2.4	1.5	
MEAN			17.5	6.8	2.9	2.2	2.4
AC-FT			34.7	408	179	126	144

1/ No record before May 15.

SHASTA RIVER WATERMASTER SERVICE AREA

TABLE 31

1989 Daily Mean Discharge
(In cubic feet per second)

SHASTA RIVER AT MONTAGUE-GRENADA HIGHWAY BRIDGE

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		279		94	24	30	38
2		275		84	24	30	34
3		275		77	24	27	24
4		275		120	30	27	24
5		275		127	34	27	27
6		263	51 1/	134	31	19	27
7		245	61	127	23	20	29
8		241	94	103	12	67	26
9		234	234	90	9	134	24
10		234	310	84	31	61	27
11		230	310	41	31	31	27
12		179	275	45	29	23	27
13		165	230	34	27	24	33
14		165 1/	179	27	40	23	36
15			127	31	45	36	36
16			84	38	30	42	51
17			103	36	33	31	197
18			84	36	34	42	282
19			71	27	23	36	286
20			64	24	16	27	267
21			51	24	16	20	252
22			43	23	19	23	237
23			45	24	22	23	222
24			64	27	19	26	204
25			71	24	27	29	190
26			58	27	16	36	172
27			58	26	16	27	84
28			67	27	17	31	64
29			127	23	16	31	43
30			127	23	16	51	45
31			103		22	45	
MEAN			119	54.2	24.4	35.4	101
AC-FT			6130	3227	1500	2180	6020

1/ No record from April 15 to May 5.

SHASTA RIVER WATERMASTER SERVICE AREA
Water Year 1988-89

TABLE 32

LAKE SHASTINA (DWINNELL RESERVOIR)
DAILY MEAN STORAGE IN ACRE-FEET

DAY	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	1,780	1,780	5,760	7,750	9,900	11,800	25,550	29,000	27,200	20,380	12,100	7,300
2	1,660	1,810	5,840	7,750	10,000	11,800	25,550	29,000	26,900	20,100	11,900	7,210
3	1,570	1,870	5,920	7,840	10,000	12,000	25,700	29,000	26,900	19,820	11,700	7,120
4	1,570	1,930	6,000	7,840	10,100	12,000	25,850	29,000	26,750	19,680	11,500	7,030
5	1,540	1,990	6,080	7,840	10,100	12,100	26,000	29,000	26,750	19,400	11,200	6,760
6	1,450	2,020	6,160	7,930	10,200	12,300	26,000	28,850	26,600	19,120	11,000	6,580
7	1,450	2,050	6,240	8,020	10,300	12,560	26,150	28,850	26,600	18,840	10,800	6,400
8	1,540	2,110	6,240	8,200	10,300	12,650	26,300	28,700	26,450	18,700	10,700	6,240
9	1,600	2,170	6,320	8,200	10,400	14,300	26,450	28,850	26,300	18,420	10,500	6,160
10	1,630	2,240	6,400	8,290	10,400	16,340	26,750	29,300	26,000	18,280	10,300	6,080
11	1,630	2,320	6,490	8,380	10,400	18,140	26,900	29,450	25,850	18,000	10,200	6,000
12	1,660	2,360	6,490	8,470	10,500	19,120	27,050	29,600	25,550	17,610	10,100	5,920
13	1,660	2,440	6,580	8,560	10,500	19,820	27,200	29,600	25,400	17,090	9,900	5,840
14	1,660	2,560	6,580	8,650	10,600	20,380	27,350	29,450	24,950	16,830	9,800	5,760
15	1,660	2,600	6,670	8,650	10,600	20,800	27,500	29,450	24,800	16,460	9,600	5,760
16	1,660	2,700	6,760	8,740	10,700	21,360	27,500	29,300	24,500	16,340	9,400	5,680
17	1,660	2,800	6,760	8,740	10,800	21,780	27,650	29,300	24,350	16,100	9,200	5,600
18	1,690	2,900	6,850	8,830	10,900	22,060	27,800	29,150	24,200	15,980	9,010	5,840
19	1,690	3,000	6,940	8,920	11,000	22,340	27,950	29,000	23,900	15,620	8,830	5,840
20	1,690	3,150	7,030	8,920	11,000	22,620	27,950	29,000	23,600	15,260	8,650	5,920
21	1,690	3,220	7,030	9,010	11,100	22,900	28,100	28,850	23,320	15,020	8,470	5,920
22	1,720	3,580	7,120	9,200	11,200	23,040	28,550	28,700	23,040	14,780	8,380	5,920
23	1,720	4,600	7,120	9,300	11,400	23,180	28,700	28,550	22,760	14,540	8,200	5,920
24	1,720	4,970	7,210	9,400	11,500	23,460	28,850	28,400	22,480	14,190	8,110	6,000
25	1,720	5,040	7,300	9,400	11,500	23,900	28,850	28,250	22,200	13,970	8,110	6,000
26	1,750	5,180	7,390	9,500	11,500	24,200	28,850	28,100	21,920	13,640	7,930	5,920
27	1,750	5,320	7,480	9,600	11,600	24,500	29,000	27,800	21,640	13,420	7,840	5,920
28	1,750	5,460	7,480	9,700	11,700	24,650	29,000	27,650	21,220	13,200	7,660	5,920
29	1,750	5,600	7,570	9,700		24,800	29,000	27,650	21,080	12,870	7,570	5,920
30	1,780	5,680	7,570	9,800		24,950	29,000	27,500	20,660	12,650	7,570	5,920
31	1,780		7,660	9,900		25,100		27,350		12,320	7,480	

SURPRISE VALLEY WATERMASTER SERVICE AREA

The Surprise Valley service area is in Modoc County, east of the Warner Mountains. Eleven individual stream systems rising on the eastern slope of the Warner Mountains supply water to the area. These are fed by snowmelt runoff and run in fast, steep courses down the eastern slope of the Warner Mountains to the valley floor where numerous scattered diversion ditches convey water to the irrigated lands.

Pine Creek, southeast of Alturas, was included in the Surprise Valley watermaster service area in 1989.

Basis of Service

The Surprise Valley watermaster service area was created January 10, 1939, and includes Mill, Soldier, Pine, Cedar, Deep, Owl, Rader, and Emerson Creeks, all of which once had individual watermaster service. Also, service was started on Eagle Creek at that time. Bidwell Creek was added to the service area March 16, 1960, and Cottonwood Creek was added in 1977. Each of the eleven stream systems in Surprise Valley is under separate decrees.

The Pine Creek agreement established water rights for Pine Creek, which is located on the west slope of the Warner Range, on November 22, 1933. This stream was added to the South Fork Pit River area on January 22, 1935. Pine Creek Reservoir, a small reservoir above all diversions, was originally used for power generation. Now a recreation site, it has a small water right but is not in the service area. Pine Creek was added to the North Fork Pit River area on July 1, 1982 and changed to the Surprise Valley watermaster service area in 1988. The Pine Creek agreement established two priorities.

See Table 33, page 85, for specific data regarding the decrees and water rights on the individual creeks.

Water Supply

The water supply comes almost entirely from snowmelt, with only minor spring-fed flows occurring late in the season. Due to the steep eastern slope of the Warner Mountains, there are no likely storage sites on the service-area streams. Because of the lack of such regulatory storage, the available water supply at any specific diversion point may vary considerably within a few hours. Wide daily temperature changes cause great changes in the rate of snowmelt runoff. This situation is worsened by the relatively short, steep drainage area. Also, occasional summer thundershowers may cause a creek to discharge a flow of mammoth proportions for several hours. These flashes can cause considerable damage from washouts and debris deposition but are of such short duration that little or no beneficial use can be made of the water.

The water supply for Pine Creek is derived mostly from snowmelt runoff. Therefore, runoff is usually small in the early spring, increases to a peak in May

as temperatures rise, and then gradually decreases throughout the remainder of the season. Water users supplement their irrigation supplies from other sources whenever possible.

Records of the daily mean discharge at several stream gaging stations within the service area are presented in Tables 34 through 46, pages 86 through 98.

Method of Distribution

Continuous-flow distribution is used on most creeks, but water is rotated among some users in accordance with either decree schedule or by mutual agreement.

Alfalfa and meadow hay, the major crops in the valley, are irrigated by sprinklers and wild flooding, although some lands depend upon subsurface irrigation. A few of these systems work by gravity, but most use pumps with the surface water supplemented by deep wells. Many additional acres have been put into production during the past few years through the use of deep wells. Only surface water supplies are under State watermaster service.

To facilitate distribution of irrigation water, construction of permanent diversion dams, headgates, and measuring devices has been encouraged in recent years. Although these structures do not solve the problems of discharge variation and debris deposition, they do help a lot to solve water measurement and distribution problems.

1989 Distribution

Watermaster service began in the Surprise Valley watermaster service area on March 19 and continued until September 30, with Kevin Dossey, Assistant Engineer, Water Resources, as watermaster.

The 1989 season was considered very wet in comparison to the previous two years. The Warner Mountains snowpack water equivalent was about 140 percent of normal on April 1, 1989. Most streamflows were very high early in the irrigation season due to rains and moderate temperatures. However, because of the high early runoffs, most streams were flowing at average rates by mid-summer.

Bidwell Creek

Total stream runoff from April 1 through September 30 was 14,420 acre-feet. Full priority water was available for most of May. Flow on September 30 was about 4 cfs.

Mill Creek

Total stream runoff from April 1 through September 30 was 4,958 acre-feet. Full priority water was available for most of April and May. Most of third priority water was available through the middle of June. Flows dropped to second priorities by mid-July and first priorities only by mid-August. Flow on September 30 was 1.7 cfs.

Soldier Creek

Total stream runoff from March 19 through September 30 was 3,986 acre-feet. During most of the rotation period, full priorities were filled. After periods of extremely high runoff in April and May, the flow quickly dropped off. By the end of the rotation period on July 19, flow was down to about 4 cfs. By mid-July only first priority water was available and on September 30 flow was down to 0.9 cfs.

Pine Creek

Total stream runoff during the rotation period was 1,748 acre-feet. Nearly six rotations were completed. On May 15, streamflow reduced to 4 cfs and was distributed to Tracts 68 and 70. On May 25, flow had dropped to 1.6 cfs and was turned down the Cressler Ditch. By June 11, there was no flow in the Cressler Ditch.

Cedar Creek

Total stream runoff from April 1 through September 30 was 3,127 acre-feet. Portions of second priority water were available through the first week of June. Water was diverted from Thoms Creek to Cedar Creek beginning in late May. All water users signed an agreement that the extra water could go to the Arreche Ranch. By June 6, total flow reduced to 5 cfs and all water was turned to Tract 91. Flow on September 30 was 0.2 cfs.

Deep Creek

Total stream runoff from April 1 through September 30 was 3,350 acre-feet. In North Deep Creek, full priorities were available through all of April and most of May. In South Deep Creek, full priorities were available through most of April. By the end of May, only first priorities were available. On September 30, flow was 0.5 cfs in South Deep Creek and 0.3 cfs in North Deep Creek.

Cottonwood Creek

Total stream runoff from April 1 through September 30 was 5,230 acre-feet. Minto Ditch rotation began April 11 and ended July 10. Flow on July 10 was about 6 cfs and by September 30 flow was 1.6 cfs.

Owl Creek

Total stream runoff from April 1 through September 30 was 5,959 acre-feet. Full priority water was available during part of May and most of June. After periods of unusually high runoff, flows dropped rapidly and by September 30 flow was 1.9 cfs.

Rader Creek

Total stream runoff from April 1 through September 30 was 4,051 acre-feet. Full priority water was available during most of June. Water was diverted to

the Cockrell Ditch from May 20 until July 5. Flows dropped quickly in July and by early August, only first priority and portions of second priority water was available. Total flow on September 30 was 1.4 cfs.

Eagle Creek

Full priority water was available throughout most of May and June. On June 16, heavy rain on the Eagle Creek watershed snowpack produced a peak runoff of about 100 cfs. Hundreds of yards of gravel washed into the upper diversion structures and into the gaging station pool, rendering the gaging station inoperable. The gaging station and weir were repaired and back in operation on July 11. By mid-July, only first and second priority water was available. On September 30, flow was 2.5 cfs.

Emerson Creek

Total stream runoff from April 1 through September 30 was 2,271 acre-feet.

Third priority water did not occur. Streamflow had reduced to first priority by the end of June. Streamflow on September 30 was about 2.9 cfs.

Pine Creek Near Alturas

Total stream runoff from April 1 through September 30 was 10,327 acre-feet. Full priority water was available throughout all of April and May and most of June. While the U. S. Fish and Wildlife Service was cut back to 1.5 cfs during haying, the other water users were alloted full first priorities through mid-August. Flow on September 30 was still about 10 cfs.

TABLE 33

DECREES AND RELATED DATA - SURPRISE VALLEY STREAMS

Stream	Modoc County Superior Court Decree No.	Date	Type[a]	Service Area Created	No. of Water Right Owners	Total Cfs	Remarks
Bidwell	6420	1-13-60	S	3-16-60[b]	46	63.74	(Schedule 3) 3 priorities March 15-July 19. (Schedule 4) 5 priorities July 10-September 30. If no water passing Diversion No. 23 September 30-March 14, 1st priority provisions of Schedule 4 apply.
Mill	3024	12-19-31	CR	12-30-31	38	37.13	One priority on Brown Creek, tributary to Rutherford Creek, 7 priorities on Rutherford Creek, tributary to Mill Creek, 1st and 2nd for year-round use, 3rd and 4th April through September.
Soldier	2045	11-28-28	CR	9-11-29	13 4[c]	33.50 4.37	Starting March 19 each year, lower users receive water for 4 13-day periods alternating with upper users who receive water for 4 10-day periods, ending June 19. 7 priorities during lower users periods, 8 during upper users periods and 12 for rest of the year. Appropriative License 1566, 1613, 1648, and 1850.
Pine near Cedarville	3391	12-07-36	CR	1-13-37	5 1[c]	[d] 0.08	One full rotation totalling 693 AF. Rotation continues until flow decreases to 4 cfs, then all water goes to Cal-Vada Ranch until flow decreases to 1.60 cfs, then all water goes to the R. Bordwell Ranch.
Cedar	1206 2343 [d]	5-22-01 2-15-23	CA CA	9-11-29	12	28.90[d]	Water rights established by these two decrees and an agreement signed by all users. No. 1206 set 1st and 2nd priorities; No. 2443 3rd priority and agreement the 4th. 28.90 cfs includes 5.00 cfs imported from Thoms Creek on west slope of Warner Mountains.
Deep	3101	1-25-34	CR	12-29-34	11	29.37	Schedule 2 establishes 5 priorities, year-round.
Cottonwood	6903	12-01-64	CA	7-01-77[b]	8	[d]	Water rights based on a percentage of flow in an equal priority.
Owl	2410	5-29-29	CA	9-11-29	8	41.70	21 priorities; all year round but 8th priority, under which each of 3 owners receives his allotment for an 8-day period. Appropriative License No.2842, 3.54 cfs.
Rader	3626	6-04-37	CR	6-12-37	6	21.00	7 priorities. 7th is for surplus water. Diversions No. 1, 3, 6, and 7 have seasonal limitations.
Eagle	2304 3284	4-05-26 11-05-37	CA CR	1-10-39	36	30.57	Decree No. 3284 added rights in all priority classes, and established 4 classes. 4.50 cfs right of Betford Corp. is for use March 1 to July 1. Eagleville 'town users', Schedule 2 may divert through Gee & Grider ditches March 16 to October 14 each year. Set 1st priority rights of Gee & Grider ditches, Par. XVII & XVIII, for use April 15 to October 1.
Emerson	2840	3-25-30	CR	4-11-30	10	24.65	4 priorities, 1st is for year-round use, others April 1 to September 30.
Pine near Alturas[e]	--	11-22-33	A	1-22-35	16	60.00	Surplus flow into Doris Reservoir. Tributary to South Fork Pit River.

[a] S-Statutory, CR-Court Reference, CA-Court Adjudication, A-Agreement
[b] Added to existing Surprise Valley service area.
[c] Appropriative rights junior to the decreed rights.
[d] See remarks.
[e] Pine Creek is on the west slope of Warner Range near Alturas.

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 34

1989 Daily Mean Discharge
(In cubic feet per second)

BIDWELL CREEK NEAR FORT BIDWELL

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	14	45	50	46	24	7.2	4.9
2	14	39	54	50	23	6.8	4.9
3	12	36	63	61	22	6.7	4.7
4	13	36	80	71	21	6.3	4.6
5	17	37	98	77	20	5.9	4.5
6	29	44	118	78	18	5.9	4.4
7	29	54	149	77	17	5.7	4.4
8	30	64	164	74	16	5.8	4.4
9	43	73	159	72	16	6.0	4.1
10	44	83	177	70	15	5.9	4.1
11	41	91	133	66	15	5.9	4.1
12	37	87	109	61	14	5.6	3.9
13	34	89	95	59	13	5.6	4.0
14	31	99	83	57	13	5.4	4.1
15	28	135	79	58	12	5.4	4.1
16	28	120	80	53	12	5.1	4.4
17	26	104	84	49	12	5.1	6.1
18	25	117	86	46	12	5.1	7.4
19	25	129	80	44	11	4.9	7.4
20	24	140	76	41	11	4.9	7.4
21	30	126	75	39	10	4.9	7.3
22	34	103	73	37	9.9	5.0	7.3
23	33	84	72	35	9.5	6.7	7.2
24	34	71	67	34	9.2	6.8	7.2
25	35	62	63	32	8.9	6.5	7.2
26	33	54	54	30	8.5	6.1	7.2
27	32	50	52	29	8.4	5.9	7.2
28	35	48	50	29	8.2	5.6	7.3
29	34	48	48	27	7.8	5.4	7.2
30	34	49	46	26	7.6	5.1	7.4
31	48		45		7.3	5.1	
MEAN	29.9	77.2	85.9	50.9	13.3	5.8	5.7
AC-FT	1837	4596	5280	3031	818	354	338

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 35

1989 Daily Mean Discharge
(In cubic feet per second)

MILL CREEK ABOVE ALL DIVERSIONS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		25	18	17	8.3	2.7	1.6
2		25	20	18	8.5	2.7	1.6
3		23	23	19	8.3	2.6	1.5
4		21	26	21	8.5	2.5	1.5
5		23	28	21	9.5	2.4	1.5
6		27	33	22	9.1	2.4	1.5
7		33	37	22	7.6	2.3	1.6
8		34	40	22	6.3	2.2	1.5
9		36	42	21	6.0	2.1	1.5
10		38	43	20	5.6	2.0	1.5
11		35	41	20	5.2	1.9	1.5
12		33	34	20	4.6	1.9	1.4
13		34	30	19	3.9	1.9	1.3
14		38	28	19	5.0	1.8	1.4
15		45	28	19	5.3	1.8	1.4
16		47	28	20	5.2	1.8	1.7
17		47	30	17	4.7	1.8	2.3
18		45	28	15	3.5	1.8	2.6
19		46	26	15	3.4	1.8	2.2
20		44	25	13	3.3	1.8	1.9
21		34	24	12	3.2	1.7	1.9
22		27	24	12	3.0	1.9	1.7
23		24	24	11	2.9	4.3	1.7
24		21	23	11	3.2	2.0	1.7
25		20	22	11	3.2	2.1	1.7
26		18	20	10	3.1	2.0	1.8
27		17	20	9.9	3.1	1.8	1.7
28		16	19	8.8	3.0	1.8	1.7
29		18	18	7.9	2.9	1.8	1.7
30		17	17	8.5	2.9	1.7	1.7
31			17		2.8	1.7	
MEAN		30.4	27.0	16.1	5.0	2.1	1.7
AC-FT		1807	1658	956	308	129	100

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 36

1989 Daily Mean Discharge
(In cubic feet per second)

SOLDIER CREEK ABOVE ALL DIVERSIONS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		21	16	8.2	3.1	1.5	0.9
2		20	20	8.9	2.9	1.6	0.9
3		18	24	9.9	2.8	1.5	0.9
4		17	34	10	2.7	1.5	0.9
5		22	40	9.9	2.6	1.4	0.8
6		30	38	9.5	2.6	1.4	0.9
7		34	37	8.5	2.3	1.4	0.9
8		36	37	8.2	2.3	1.6	0.8
9		38	34	7.5	2.3	1.8	0.8
10		36	35	6.6	2.2	1.2	0.8
11		38	21	6.1	2.2	1.2	0.8
12		32	18	5.6	2.1	1.1	0.8
13		32	17	5.4	1.9	1.1	0.8
14		34	14	5.3	1.8	1.1	0.8
15		41	14	7.1	1.8	1.1	0.7
16		57	15	5.9	1.8	1.1	1.1
17		67	17	5.1	1.9	0.9	4.7
18		68	13	4.9	1.9	1.1	7.3
19	8.2[1]/	60	12	4.7	1.9	0.9	2.3
20	6.8	38	12	4.6	1.8	0.9	1.6
21	18	36	12	4.3	1.7	0.9	1.3
22	18	33	11	4.0	1.7	2.3	1.2
23	14	26	10	3.9	1.6	4.6	1.2
24	15	20	9.3	3.7	1.6	1.4	1.1
25	14	15	8.9	3.6	1.5	1.3	0.9
26	12	14	8.9	3.5	1.5	1.2	1.1
27	11	13	9.1	3.5	1.5	1.1	1.1
28	15	12	8.2	3.3	1.4	1.1	0.9
29	13	13	7.5	3.2	1.4	0.9	0.9
30	14	14	7.1	3.2	1.4	1.1	0.9
31	25		7.8		1.5	1.1	
MEAN	15.3	31.2	18.3	5.9	2.0	1.4	1.3
AC-FT	366	1855	1126	353	122	84	80

1/ No record before March 19.

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 37

1989 Daily Mean Discharge
(In cubic feet per second)

PINE CREEK NEAR CEDARVILLE AT DIVERSION OF NORTH AND SOUTH CHANNELS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		23	5.7	1.1			
2		20	6.6	1.0			
3		20	6.6	0.8			
4		19	7.2	0.6			
5		19	7.1	0.5			
6		24	8.0	0.4			
7		29	7.1	0.3			
8		35	7.1	0.2			
9		36	6.4	0.1			
10		33	6.4	0.1 1/			
11		28	5.9				
12		22	4.6				
13		21	4.5				
14		21	4.1				
15		22	3.7				
16		28	3.4				
17		24	3.1				
18		22	2.7				
19		19	2.2				
20	8.0 1/	18	2.1				
21	20	15	2.0				
22	18	11	2.2				
23	16	9.0	2.3				
24	16	9.0	2.0				
25	16	7.5	1.6				
26	12	6.1	1.6				
27	12	6.1	1.5				
28	17	5.9	1.4				
29	16	5.6	1.3				
30	15	6.1	1.3				
31	23		1.2				
MEAN	15.8	18.8	4.0	0.5			
AC-FT	375	1119	244	10			

1/ No record before March 20 and no flow after June 10.

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 38

1989 Daily Mean Discharge
(In cubic feet per second)

CEDAR CREEK AT CEDARVILLE

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	8.6	48E	13	6.1	1.5	0.4	0.3
2	8.3	52E	13	6.1	1.4	0.4	0.2
3	6.7	47E	13	6.2	1.4	0.4	0.2
4	6.3	43E	13	5.1	1.3	0.4	0.2
5	26 E	44E	13	4.9	1.2	0.3	0.2
6	43 E	53E	13	4.6	1.1	0.3	0.2
7	29	62E	13	4.3	1.0	0.3	0.2
8	41 E	62E	13	4.0	1.0	0.4	0.2
9	98 E	51E	13	3.8	1.0	0.7	0.2
10	71 E	49E	15	3.7	1.0	0.4	0.2
11	76 E	44E	12	3.5	1.0	0.3	0.2
12	51 E	41	12	3.2	0.9	0.3	0.2
13	37 E	38E	11	2.9	0.8	0.3	0.2
14	25	40E	9.7	2.9	0.8	0.3	0.2
15	22	47E	8.8	3.2	0.8	0.2	0.1
16	21	46E	8.5	3.3	0.8	0.2	5.1
17	18	42E	8.2	2.8	0.8	0.2	4.8
18	18	40E	8.4	2.6	0.8	0.2	5.8
19	19	35	8.1	2.5	0.7	0.2	3.1
20	18	31	7.8	2.4	0.6	0.2	2.3
21	33 E	29	7.5	2.5	0.6	0.2	1.4
22	33	25	7.2	2.2	0.6	0.4	1.1
23	28	23	7.7	2.1	0.5	1.1	0.9
24	35 E	20	7.9	2.0	0.5	0.5	0.9
25	39 E	18	7.6	1.9	0.5	0.5	0.8
26	32	16	7.1	1.8	0.4	0.4	0.8
27	27	15	7.0	1.7	0.5	0.3	0.8
28	35	15	7.0	1.7	0.4	0.3	0.7
29	33	15	6.7	1.6	0.4	0.3	0.7
30	29	14	6.4	1.6	0.4	0.3	0.8
31	57 E		6.2		0.4	0.3	
MEAN	33.0E	36.8E	9.8	3.2	0.8	0.4	1.1
AC-FT	2031E	2192E	605	193	50	22	65

E - Estimated

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 39

1989 Daily Mean Discharge
(In cubic feet per second)

NORTH DEEP CREEK ABOVE ALL DIVERSIONS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		12	4.8	2.9	0.9	0.4	0.3
2		13	5.3	2.9	0.9	0.4	0.3
3		11	7.4	3.0	0.8	0.4	0.3
4		9.1	8.2	3.0	0.7	0.4	0.3
5		11	8.8	3.2	0.7	0.3	0.3
6		13	9.5	3.2	0.7	0.3	0.3
7		14	9.5	2.9	0.6	0.3	0.3
8		15	10	3.0	0.6	0.5	0.3
9		15	11	2.9	0.6	0.3	0.3
10		15	11	2.7	0.6	0.3	0.3
11		14	10	2.6	0.5	0.3	0.3
12		13	8.8	2.3	0.5	0.3	0.3
13		13	8.2	2.2	0.4	0.3	0.3
14		14	7.4	2.1	0.4	0.3	0.3
15		18	6.3	2.2	0.4	0.3	0.3
16		20	5.9	2.5	0.4	0.3	0.8
17		20	7.4	1.9	0.4	0.3	2.6
18		19	6.3	1.8	0.4	0.3	0.9
19		18	6.0	1.6	0.4	0.3	0.5
20		15	5.7	1.6	0.4	0.3	0.5
21		14	5.4	1.4	0.4	1.9	0.6
22		13	5.2	1.2	0.4	0.5	0.4
23		9.8	5.0	1.2	0.4	0.4	0.4
24		9.1	4.7	1.2	0.4	0.3	0.4
25		7.0	4.7	1.0	0.4	0.3	0.3
26		6.1	4.3	1.0	0.4	0.3	0.3
27		5.6	4.0	1.0	0.4	0.3	0.3
28		5.3	4.0	0.9	0.4	0.3	0.3
29		5.1	3.8	0.9	0.4	0.3	0.3
30		5.1	3.4	0.9	0.4	0.3	0.3
31			2.9		0.4	0.3	
MEAN		12.4	6.6	2.0	0.5	0.4	0.4
AC-FT		738	406	121	31	23	27

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 40

1989 Daily Mean Discharge
(In cubic feet per second)

SOUTH DEEP CREEK BELOW NO. 2 DIVERSION

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		17	7.6	4.4	1.3	0.5	1.5
2		18	8.3	4.4	1.3	0.5	0.5
3		16	11	4.6	1.2	0.5	0.5
4		13	13	4.6	1.0	0.5	0.5
5		16	14	4.9	1.0	0.5	0.5
6		18	15	4.9	1.0	0.5	0.5
7		20	15	4.4	0.9	0.5	0.5
8		22	16	4.6	0.9	0.7	0.5
9		21	17	4.4	0.8	0.5	0.5
10		22	18	4.2	0.8	0.5	0.5
11		20	16	4.0	0.7	0.5	0.5
12		19	14	3.6	0.7	0.5	0.5
13		19	13	3.4	0.6	0.5	0.5
14		20	11	3.2	0.6	0.5	0.5
15		25	10	3.4	0.6	0.5	0.5
16		29	9.4	3.8	0.5	0.5	0.5
17		29	11	2.9	0.5	0.5	1.3
18		27	10	2.7	0.5	0.5	4.4
19		25	9.5	2.5	0.5	0.5	1.5
20		22	9.0	2.4	0.5	0.5	0.9
21		20	8.6	2.1	0.5	0.5	0.7
22		18	8.3	1.9	0.5	3.1	0.6
23		14	8.0	1.8	0.5	0.8	0.6
24		13	7.4	1.8	0.5	0.6	0.6
25		10	7.4	1.6	0.5	0.5	0.5
26		8.8	6.9	1.5	0.5	0.5	0.5
27		8.0	6.4	1.5	0.5	0.5	0.6
28		7.6	6.4	1.4	0.5	0.5	0.5
29		7.3	6.1	1.4	0.5	0.5	0.5
30		7.3	5.3	1.4	0.5	0.5	0.5
31			4.6		0.5	0.5	
MEAN		17.7	10.4	3.1	0.7	0.6	0.7
AC-FT		1055	641	186	42	37	43

SURPRISE VALLEY WATERMASTER AREA

TABLE 41

1989 Daily Mean Discharge
(In cubic feet per second)

COTTONWOOD CREEK FLUME BELOW PAGE DITCH

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		14	17	14	13	1.8	1.5
2		15	21	17	13	1.8	1.5
3		14	27	21	12	1.8	1.4
4		13	32	27	11	1.8	1.4
5		14	35	31	10	1.8	1.4
6		17	34	42	9.8	1.7	1.4
7		27	31	51	9.0	1.7	1.4
8		29	27	53	8.6	1.8	1.4
9		29	29	51	8.2	2.1	1.4
10		32	27	48	7.1	1.8	1.4
11		24	23	47	6.4	1.6	1.4
12		25	23	46	6.4	1.5	1.4
13		28	22	45	6.4	1.4	1.3
14		30	20	46	6.1	1.4	1.3
15		32	20	48	5.8	1.4	1.2
16		34	20	41	5.6	1.3	2.2
17		35	21	32	5.1	1.3	3.7
18		38	21	34	4.5	1.3	5.1
19		40	20	30	4.4	1.3	3.2
20		42	20	25	4.4	1.3	2.9
21		35	20	20	3.7	1.2	2.8
22		27	21	17	3.3	17	2.7
23		25	20	17	3.0	2.5	2.5
24		23	19	18	2.4	1.9	2.4
25		22	18	18	2.3	2.0	2.1
26		20	11	17	2.1	2.1	1.9
27		18	12	17	2.1	1.9	1.8
28		18	11	16	2.1	1.7	1.7
29		19	11	14	1.9	1.5	1.7
30		18	9.8	14	1.9	1.5	1.5
31			11		1.9	1.5	
MEAN		25.2	21.1	30.6	5.9	2.2	2.0
AC-FT		1501	1297	1819	364	132	117

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 42

1989 Daily Mean Discharge
(In cubic feet per second)

OWL CREEK BELOW ALLEN-ARRECHE DITCH

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		13	15	21	13	3.4	1.7
2		14	19	28	13	3.4	1.6
3		13	27	32	13	3.4	1.4
4		12	30	41	13	3.0	1.2
5		13	37	46	13	3.0	1.2
6		16	43	46	12	2.3	1.4
7		25	43	49	12	2.3	1.6
8		27	49	49	11	3.0	1.4
9		27	46	49	11	3.8	1.4
10		28	50	46	9.5	3.0	1.4
11		23	47	45	8.5	2.3	1.4
12		22	37	44	8.5	2.2	1.6
13		26	31	45	6.7	2.0	1.6
14		29	30	46	6.7	2.0	1.6
15		31	28	49	6.0	2.0	1.6
16		32	28	42	6.0	2.0	2.0
17		34	31	40	6.0	1.9	4.3
18		37	30	33	6.0	1.9	6.3
19		41	29	31	5.3	2.0	4.3
20		40	30	28	4.9	2.2	3.8
21		33	30	25	4.6	2.0	3.3
22		29	30	20	4.3	4.0	3.1
23		27	29	20	4.0	9.3	2.5
24		19	28	19	4.0	3.4	2.2
25		16	25	18	4.0	2.3	2.2
26		14	21	18	3.8	1.9	2.2
27		14	23	18	3.8	1.8	2.2
28		13	20	17	3.8	1.7	2.0
29		13	18	16	3.8	1.7	2.0
30		13	16	14	3.8	1.7	1.9
31			17		3.4	1.7	
MEAN		23.1	30.2	33.2	7.4	2.7	2.2
AC-FT		1377	1859	1974	453	164	132

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 43

1989 Daily Mean Discharge
(In cubic feet per second)

RADER CREEK BELOW COCKRELL DIVERSION

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		5.8	11	11	11	2.0	1.3
2		6.5	13	13	11	2.0	1.2
3		8.0	13	14	10	2.0	1.3
4		9.2	13	15	10	1.7	1.3
5		9.7	16	15	9.4	1.7	1.3
6		11	18	16	8.8	1.7	1.3
7		13	18	25	7.6	1.6	1.3
8		14	21	31	7.1	1.6	1.2
9		14	22	36	6.5	1.6	1.2
10		15	20	33	6.5	1.6	1.2
11		14	23	32	6.0	1.4	1.1
12		15	21	30	5.6	1.3	1.0
13		15	19	31	5.1	1.3	1.0
14		18	18	29	5.1	1.2	1.0
15		21	17	33	4.7	1.2	1.0
16		22	17	51	4.7	1.2	1.1
17		22	18	47	4.2	1.2	3.3
18		23	18	46	3.8	1.2	4.0
19		21	18	45	3.8	1.2	3.3
20		18	17	44	3.5	1.2	2.7
21		16	16	41	3.5	1.2	2.4
22		15	16	37	3.1	1.7	2.4
23		13	18	36	3.1	2.3	2.1
24		13	17	36	2.8	1.5	1.9
25		12	16	30	2.6	1.4	1.9
26		11	16	25	2.3	1.3	1.7
27		11	14	21	2.3	1.3	1.7
28		11	10	14	2.3	1.2	1.6
29		11	9.4	13	2.3	1.2	1.6
30		10	9.4	12	2.3	1.3	1.4
31			10		2.3	1.3	
MEAN		13.9	16.2	28.7	5.3	1.5	1.7
AC-FT		829	997	1710	324	90	101

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 44

1989 Daily Mean Discharge
(In cubic feet per second)

EAGLE CREEK NEAR EAGLEVILLE

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		NR	11	17	NR	4.5	2.7
2		NR	12	NR	NR	4.3	2.7
3		NR	14	NR	NR	3.9	2.6
4		NR	20	NR	NR	3.8	2.5
5		NR	NR	NR	NR	3.7	2.5
6		NR	NR	NR	16 E	3.8	2.5
7		NR	NR	NR	NR	3.7	2.5
8		NR	NR	NR	NR	3.7	2.5
9		NR	39	NR	NR	3.7	2.5
10		NR	NR	NR	NR	3.6	2.4
11		16	NR	NR	NR	3.3	2.3
12		19	28	NR	11	3.0	2.3
13		19	NR	NR	11	2.8	2.2
14		NR	24	NR	10	2.8	2.0
15		NR	22	NR	10	2.8	2.0
16		NR	22	60 E	9.9	2.8	2.2
17		NR	NR	NR	9.5	2.7	5.4
18		NR	NR	NR	9.1	2.8	5.5
19		NR	NR	NR	8.4	2.9	5.7
20		NR	NR	NR	7.8	2.7	4.4
21		NR	NR	28 E	7.6	2.6	3.8
22		22	NR	NR	7.1	4.2	3.4
23		18	NR	NR	6.9	6.3	3.1
24		15	22	NR	6.6	4.0	2.9
25		13	19	NR	6.3	3.5	2.8
26		12	18	NR	5.9	3.2	2.7
27		11	18	NR	5.7	2.9	2.7
28		11	18	NR	5.4	2.8	2.6
29		10	16	22 E	4.9	2.8	2.5
30		10	14	NR	4.6	2.7	2.5
31			15		4.6	2.7	
MEAN						3.4	2.9
AC-FT						208	175

NR - No Record
E - Estimated

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 45

1989 Daily Mean Discharge
(In cubic feet per second)

EMERSON CREEK ABOVE ALL DIVERSIONS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	5.8	11 E	11E	13	6.7E	3.4E	2.6
2	5.2E	11 E	12E	13 E	6.4E	2.8E	2.5
3	5.8E	10 E	15E	16 E	6.1E	3.5E	2.5
4	6.4E	9.6E	19E	20 E	5.8E	3.4E	2.5
5	11 E	11 E	26E	21 E	5.6E	3.3E	2.5
6	15 E	13 E	31E	24 E	5.5E	3.2E	2.7
7	12 E	16 E	45E	15 E	5.2	3.2	2.8
8	13 E	19 E	49E	22 E	5.3E	3.2E	2.6
9	27 E	21 E	51E	14 E	5.3E	3.3E	2.5
10	25 E	23 E	51E	19 E	5.3E	3.2E	2.5
11	22 E	25	40E	20 E	5.1E	3.1E	2.5
12	16 E	27 E	21E	19 E	4.9E	3.1	2.5
13	13 E	23 E	27E	18 E	4.8E	3.1	2.5
14	11 E	35 E	24E	16 E	3.9E	2.9	2.5
15	9.3E	45 E	20E	22 E	4.6E	2.9	2.5
16	8.4E	41 E	19E	13 E	4.5E	2.8	2.9E
17	7.4E	47 E	21E	17 E	4.5E	2.8	3.8E
18	7.2E	51 E	21E	15 E	4.5E	2.8	3.7E
19	7.1E	42 E	19E	14 E	4.4E	2.9	3.5E
20	6.5E	42 E	17E	14 E	3.2E	2.9	3.2E
21	11 E	36 E	17E	13 E	4.3E	2.8	3.1
22	11 E	25 E	14E	12 E	4.2E	3.4E	2.9
23	10 E	19 E	13E	11 E	4.1E	3.7E	2.8
24	10 E	16 E	13E	10 E	4.1E	3.2	2.8
25	11 E	13 E	13E	9.0E	4.0E	3.2	2.8
26	9.6E	12 E	13E	8.5E	3.9E	2.9	2.9
27	8.8E	11 E	14E	7.8E	3.9E	2.7	2.9
28	9.8E	11 E	13E	7.5E	2.8E	2.7	2.8
29	9.6E	10 E	13E	7.1E	3.7E	2.6	3.0
30	8.9E	10 E	13E	5.1E	3.5E	2.7	3.1
31	10 E		13E		3.4E	2.6	
MEAN	11.1E	22.9E	22.2E	14.5E	4.6E	3.0E	2.8E
AC-FT	682E	1360E	1362E	863E	284E	187E	167E

E - Estimated

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 46

1989 Daily Mean Discharge
(In cubic feet per second)

PINE CREEK NEAR ALTURAS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	13	22	34	34	26	13	10
2	18	24	34	33	25	13	10
3	18	23	35	33	25	13	10
4	17	20	36	33	24	13	9.9
5	30	20	37	35	23	13	9.8
6	26	22	39	38	22	12	9.9
7	17	25	42	42	22	12	10
8	19	27	46	45	21	12	9.9
9	21	29	52	45	20	13	9.8
10	19	30	65	45	20	12	9.8
11	22	29	59	45	19	12	9.8
12	18	29	58	45	19	12	9.6
13	18	29	55	44	19	12	9.6
14	16	30	51	43	18	12	9.5
15	15	31	48	43	18	11	9.5
16	15	33	47	42	18	11	11
17	17	33	46	43	18	11	12
18	18	34	45	42	17	11	12
19	19	35	43	41	17	11	10
20	16	37	43	40	17	11	10
21	15	39	44	38	16	11	10
22	16	39	43	37	16	12	9.8
23	16	41	43	35	16	13	9.8
24	16	40	43	33	15	11	9.8
25	16	39	42	32	15	11	9.8
26	16	38	40	31	15	11	9.9
27	16	36	39	30	14	11	10
28	16	35	39	29	14	10	9.8
29	16	34	37	28	14	10	9.8
30	16	34	36	27	14	10	10
31	21		34		13	10	
MEAN	17.8	31.2	43.7	37.7	18.4	11.6	10.0
AC-FT	1095	1859	2688	2243	1131	714	597

SUSAN RIVER WATERMASTER SERVICE AREA

The Susan River service area is in southern Lassen County near Susanville. The main area of water use is in Honey Lake Valley between Susanville and the northwest shore of Honey Lake, a stretch of about 25 miles. The valley floor is at an elevation of about 4,000 feet. Water comes from three stream systems: Susan River, Baxter Creek, Parker Creek, and their respective tributaries.

The Susan River originates on the east slope of the Sierra Nevada just east of Lassen National Park at an elevation of about 7,900 feet. It runs east from Silver Lake through McCoy Flat Reservoir, the town of Susanville, and then to Honey Lake.

The river has four major tributaries: Piute Creek, entering from the north at Susanville; Gold Run and Lassen Creeks, entering from the south between Susanville and Johnstonville; and Willow Creek, entering from the north above Standish. Gold Run and Lassen Creeks rise on the north slope of Diamond Mountain at an elevation of about 7,600 feet. The watersheds of Piute and Willow Creeks are on the south slopes of Round Valley Mountain at lower elevations.

The Susan River divides into three channels, a short distance below its confluence with Willow Creek. The channels are Tanner Slough Channel on the north, Old Channel in the middle, and Dill Slough Channel on the south. Hartson Slough and Whitehead Slough divert from Dill Slough on its south bank, further downstream.

The Baxter Creek stream system is in Honey Lake Valley on the east side of the Sierra Nevada, about 10 miles southeast of Susanville. The main creeks in the system are Baxter Creek, which rises on the west side of the basin and flows east, and Elesian, Sloss, and Bankhead Creeks, tributaries of Baxter Creek from the south.

Parker Creek is also in Honey Lake Valley on the east slope of the Sierra Nevada, about 15 miles southeast of Susanville. It rises on the east side of Diamond Mountain and flows east for about 5 miles into Honey Lake.

Basis of Service

The waters of Susan River and its tributaries are distributed according to the water rights defined in Decree No. 4573, Lassen County Superior Court, entered on April 18, 1940. Schedule 3 of the decree defines the rights to the use of water from Willow Creek in Willow Creek Valley, Lower Willow Creek, and the Susan River delta below the Colony Dam. Schedule 4 of the decree defines the rights to the use of water from Gold Run, Piute, Hills, Holtzclaw, and Lassen Creeks above their confluence with the Susan River. Schedules 5 and 6 of the decree define the rights to the use of water from the Susan River, exclusive of its tributaries. The decree establishes three priority classes each on Susan River and Gold Run Creek, two on Willow Creek, and one each on Piute and Hills Creeks.

The water of Baxter Creek and its tributaries is distributed according to the water rights defined in the statutory adjudication as set forth in Decree No. 8174, Lassen County Superior Court, dated December 15, 1955. Schedule 3 of the decree defines the rights to the use of water from Sloss and Bankhead Creeks, and Schedule 4 defines the rights to the use of water from Baxter and Elesian Creeks. The Baxter Creek rights are divided into five priority classes.

The water of Parker Creek and its tributaries is distributed according to the water rights defined by a statutory adjudication as set forth in Decree No. 8175, Lassen County Superior Court, dated December 15, 1955. Schedule 3 of the decree defines the rights to the use of water from Parker Creek, with four priority classes.

The Susan River watermaster service area was created by order of the Division of Water Resources on November 10, 1941. The Baxter and Parker Creek stream systems were added to the Susan River service area on February 16, 1956.

Water Supply

Water in the Susan River service area comes from two major sources: snowmelt runoff and springs. Snowpack in the Willow Creek Valley and Piute Creek watersheds, which contain more than half the Susan River stream system, melts early in the spring and is usually depleted by May 1. Irrigation requirements from this part of the stream system are then almost entirely dependent on the flow of springs that are relatively constant throughout the year.

Under average flow conditions, Lassen, Gold Run, Baxter, and Parker Creeks and the Susan River above Susanville are sustained by snowmelt runoff until early June. The flow from perennial springs in this portion of the system is comparatively small.

The Lassen Irrigation Company stores supplemental water in Hog Flat and McCoy Flat Reservoirs, on the headwaters of the Susan River. This stored water is released into the Susan River Channel and joins the natural flow, usually during June and July. It is then rediverted into Lake Leavitt for further distribution by the irrigation company.

Records of daily mean discharge of the several stream gaging stations in the service area are presented in Tables 47 through 55, pages 104 through 112.

Method of Distribution

A major portion of the irrigation in the Susan River service area is done by flooding. Water is supplied to the area from the Susan River, tributaries to the river, and other minor streams. The distribution of water is provided by a system of diversion dams, canals and ditches. Included in the operation of the service area are three reservoirs owned and operated by the Lassen Irrigation Company which are McCoy Flat Reservoir, Hog Flat Reservoir, and Lake Leavitt.

1989 Distribution

This is the 48th annual report on watermaster service in the Susan River watermaster service area and covers the period of distribution beginning March 1 and continuing until November 1. Virgil Buechler, Water Resources Engineering Associate, was the watermaster. The watermaster and Surface Water Basic Data headquarters were moved to Susanville March 13, 1989.

Streamflow conditions for the service area were at a drought level for 1989, the third consecutive year, until a major storm arrived on March 8. The runoff at the USGS gaging station, "Susan River at Susanville," ended up for 1989 at 77 percent of normal.

Parker Creek

First priority water rights were served through April and then dried up to a spring-fed trickle for the upper users.

Baxter Creek

Streamflow was sufficient to have five cubic feet per second flowing past the lower user, George Marsters, until March 22 and then gradually decreased until it dried up at the Long ditch diversion on June 26.

Hills Creek

The water supply in Hills Creek was insufficient to fill Emerson Lake.

Gold Run Creek

The water supply in Gold Run Creek was in surplus of the water rights through May 10 when the flow was measured at 26 cfs. The streamflow then satisfied all water rights until June 10, and then gradually dried up to 0.6 cfs at the recorder above Saticas upper diversion on July 15. The streamflow remained there until October 20 when it started increasing.

Piute Creek

The spring-fed water supply was sufficient to satisfy all allotments and provide most of the first priority to the Old Channel users.

Susan River

The flow in the Susan River decreased to 4 cfs or 1st priority July 22 when McCoy Flat storage water was depleted. The streamflow then decreased to 25 percent of first priority on August 25 and remained until September 16 when the weather started cooling and flows started increasing.

Considerable channel cleaning was accomplished this summer on the old channel system. The Woodstock diversion dam received repairs which should improve the ability to divert the Old Channel first priority during low flows next summer. While the construction repairs were being done to the Woodstock Dam, the first priority water was byspassed and diverted into the A&B Canal providing some stock water to its river water right users.

Lassen Irrigation Company Reservoirs

The McCoy Flat measured inflow was 3,570 acre-feet for the period April 12 through June 14. McCoy Flat released a total of 8,020 acre-feet from May 26 through July 21 when it dried up. Hog Flat Reservoir released a total of 1,940 acre-feet in the period May 22 through June 14 when it dried up. Lake Leavitt started to spill, with the additional one-foot of storage or gage height 17 feet, on April 17 when releases were started for irrigation purposes. Lake Leavitt also dried up in 1989.

Lower Susan River

The flow of the Susan River above the confluence of Willow Creek was above 10 cfs until June 17 and above 5 cfs until July 1 when it eventually receded to 0.50 cfs on July 25 and remained until September 15 with the first fall rain.

Lassen Holtzslaw Creek

Lassen Creek had surplus water through April 26 and decreased to 1.5 cfs on June 26. The flow gradually decreased to a trickle in Tangeman ditch for the remainder of the season.

Willow Creek

The Neuhaus-Jacob ditch had a continuous flow of 2.1 cfs during the period from April 1 to October 31. An "F" recorder was in operation all season to record the first priority flow at Hills Lane.

The lower Schedule 3 users received their percentage of second priority water for the summer except for a short period during August.

Flow of Mapes Big Springs. To determine the flow of Mapes Big Springs, a gaging station with a 5-foot parshall flume was operated in 1989 by DWR. This station, "Willow Creek (above Mapes Big Springs) near Susanville," is above Mapes Big Springs and is located 1.7 miles above the USGS gaging station "Willow Creek near Susanville." The difference in the mean daily cubic feet per second of these two station is the flow of Mapes Big Springs in this 1.7 mile reach and has been computed as follows:

Flow of Mapes Big Springs

Month	cfs
April	2.2
May	3.4
June	5.2
July	4.1
August	No Record
September	4.8

The flow at Willow Creek near the Susanville USGS gaging station and Willow Creek (above Big Springs) near Susanville is presented in Tables 51 and 52.

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 47

1989 Daily Mean Discharge
(In cubic feet per second)

SUSAN RIVER AT SUSANVILLE[1/]

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	66	274	63	109	97	3.0	1.3
2	93	256	61	106	96	2.7	1.3
3	74	279	59	109	94	2.4	1.7
4	55	239	58	114	94	2.4	1.3
5	76	223	57	125	93	2.5	1.3
6	234	223	56	130	91	2.5	1.2
7	242	231	55	128	90	2.4	1.2
8	675	238	54	141	88	2.4	1.4
9	1590	231	52	134	86	2.3	1.6
10	1380	222	56	126	84	2.2	1.8
11	1350	214	56	121	84	2.2	2.0
12	662	195	51	118	82	2.0	2.0
13	499	179	48	114	80	1.5	1.9
14	343	170	47	109	78	1.4	1.9
15	276	167	45	108	76	1.2	1.0
16	258	161	43	110	75	1.2	2.4
17	227	152	41	109	73	1.9	8.7
18	223	144	38	104	71	2.9	7.5
19	258	133	36	102	68	2.4	6.3
20	240	122	34	101	65	1.9	5.3
21	205	118	32	100	62	1.9	4.4
22	198	116	31	98	46	0.9	4.3
23	189	102	70	97	29	2.0	4.4
24	244	101	116	95	20	2.6	4.2
25	422	93	117	93	15	2.1	4.2
26	348	86	109	91	11	1.0	3.8
27	286	78	106	91	8.2	1.4	3.5
28	262	72	119	92	6.9	1.8	3.9
29	259	67	130	95	5.7	1.2	4.4
30	232	64	133	98	4.5	1.2	6.1
31	251		118		3.6	2.3	
MEAN	378	165	67.5	109	60.5	2.0	3.2
AC-FT	23240	9820	4150	6480	3720	123	191

1/ USGS Station

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 48

1989 Daily Mean Discharge
(In cubic feet per second)

SUSAN RIVER ABOVE NO. 44 DIVERSION

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15			NO RECORD FOR 1989				
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
MEAN							
AC-FT							

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 49

1989 Daily Mean Discharge
(In cubic feet per second)

SUSAN RIVER ABOVE CONFLUENCE OF WILLOW CREEK

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1			34	27	3.6	0.5	
2			28	18	2.9	0.5	
3			24	19	2.9	0.5	
4			25	16	2.5	0.5	
5			25	40	2.5	0.5	
6			25	45	2.9	0.5	
7			27	37	3.6	0.5	
8			27	39	1.0	2.5	
9			28	32	2.5	0.5[1/]	
10			30	27	4.8		
11			28	26	5.0		
12			27	17	2.9		
13			27	15	2.5		
14			27	15	2.5		
15			25	13	2.5		
16		65[1/]	22	13	2.5		
17		61	21	12	2.5		
18		55	18	9.8	4.8		
19		46	14	8.9	4.3		
20		44	14	8.2	2.5		
21		37	12	7.3	2.5		
22		34	10	7.3	2.5		
23		37	10	5.9	0.5		
24		40	10	5.9	0.5		
25		42	14	5.1	0.5		
26		49	18	5.1	0.5		
27		52	19	5.1	0.5		
28		49	27	4.6	0.5		
29		46	65	4.6	0.5		
30		37	65	4.6	0.5		
31			27		0.5		
MEAN			24.9	16.4	2.3		
AC-FT			1531	976	140		

1/ No record before April 16 and no flow after August 9.

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 50

1989 Daily Mean Discharge
(In cubic feet per second)

GOLD RUN CREEK NEAR SUSANVILLE

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1			17	11	3.0	0.6	0.6
2			16	11	2.6	0.6	0.6
3			19	11	2.4	0.6	0.5
4			23	11	2.0	0.6	0.4
5			25	12	1.8	0.6	0.3
6			25	12	1.6	0.6	0.3
7			25	11	1.4	0.6	0.3
8			26	12	1.2	1.2	0.3
9			26	11	1.0	1.8	0.3
10			26	11	1.0	1.5	0.3
11			25	10	1.0	1.4	0.3
12			23	9.2	0.9	1.2	0.3
13			21	9.1	0.9	1.0	0.3
14			18	8.8	0.8	0.8	0.3
15			18	7.1	0.6	0.8	0.3
16			18	6.1	0.6	0.6	0.3
17			17	8.8	0.6	0.6	1.6
18			15	7.1	0.6	0.6	2.1
19			14	6.1	0.6	0.6	1.2
20			14	5.2	0.3	0.7	0.8
21			14	5.2	0.2	0.7	0.6
22			13	5.0	0.2	0.8	0.6
23		26[1]/	13	4.3	0.2	2.1	0.5
24		25	11	4.0	0.2	1.2	0.4
25		23	11	3.4	0.2	1.2	0.3
26		21	10	3.4	0.2	1.0	0.4
27		17	10	3.2	0.2	0.9	0.6
28		17	11	3.2	0.3	0.6	0.6
29		17	13	3.0	0.3	0.6	0.8
30		17	13	3.0	0.3	0.6	0.9
31			12		0.3	0.6	
MEAN			17.4	7.6	0.9	0.9	0.7
AC-FT			1073	451	54	58	41

1/ No record before April 23.

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 51

1989 Daily Mean Discharge
(In cubic feet per second)

WILLOW CREEK NEAR SUSANVILLE[1/]

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	48	39	12	20	6.6	4.9	5.0
2	54	37	15	18	6.9	5.0	5.0
3	56	36	18	17	6.7	4.7	5.0
4	49	34	19	15	7.2	4.8	5.0
5	44	32	17	13	13	4.5	5.0
6	52	31	15	13	9.9	4.8	5.1
7	47	25	15	13	8.8	4.6	5.3
8	65	22	22	15	8.1	4.4	5.5
9	121	25	25	17	7.8	4.3	5.8
10	172	23	30	16	7.5	4.3	5.7
11	233	27	31	16	7.3	4.2	5.6
12	182	27	28	14	7.3	4.2	5.6
13	112	27	25	12	7.3	4.3	5.8
14	89	25	20	11	7.6	4.6	5.8
15	75	20	16	10	7.6	4.6	5.8
16	74	20	11	9.9	7.9	4.6	5.9
17	77	21	9.9	9.5	7.6	4.7	6.0
18	70	20	9.3	8.9	7.1	4.5	6.2
19	64	18	8.5	8.5	7.2	4.4	6.1
20	55	20	8.0	8.1	6.8	4.5	6.2
21	53	16	8.3	7.7	6.7	4.5	6.2
22	47	16	8.2	7.4	7.0	4.9	6.2
23	43	13	8.8	7.3	6.6	4.9	6.3
24	47	12	8.1	7.1	6.0	4.7	6.3
25	66	12	7.7	6.9	6.0	4.8	6.3
26	77	11	7.9	6.8	5.4	4.7	6.3
27	62	11	8.2	6.8	5.2	4.6	6.4
28	51	11	8.8	6.7	4.9	4.8	6.3
29	45	10	12	6.7	5.0	4.8	6.4
30	41	11	18	6.9	5.0	4.8	6.4
31	40		21		5.0	5.4	
MEAN	74.5	21.7	15.2	11.2	7.1	4.6	5.8
AC-FT	4580	1290	936	665	434	285	346

1/ USGS Station.

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 52

1989 Daily Mean Discharge
(In cubic feet per second)

WILLOW CREEK (ABOVE MAPES BIG SPRINGS) NEAR SUSANVILLE[1/]

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		27	7.6	15	1.5		0.5
2		31	9.6	13	2.0		0.9
3		34	14	12	2.0		0.8
4		32	15	9.5	2.6		0.9
5		31	14	8.3	10		0.9
6		30	12	7.9	5.3		0.8
7		23	12	8.4	4.3		0.9
8		21	20	11	3.4		1.2
9		24	22	12	3.0		1.1
10		22	27	11	2.9		0.9
11		26	27	11	2.7		0.7
12		26	24	8.5	2.8		0.7
13		26	21	6.7	2.9		0.6
14		24	16	5.7	3.6		0.6
15		19	11	4.7	3.3		0.5
16		20	7.0	4.4	3.9		0.5
17		20	5.6	3.8	3.0		0.9
18		20	6.6	3.3	2.7	0.0[2/]	1.1
19		18	6.3	2.9	2.7	0.0	1.2
20		21	6.7	2.5	2.1	0.0	0.8
21		15	6.8	2.1	2.0	0.2	0.7
22	32[2/]	15	5.7	1.8	2.8	0.0	0.7
23	30	11	5.7	1.7	1.9	0.0	1.3
24	33	8.9	4.5	1.6	1.5	0.0	1.4
25	50	8.2	4.0	1.5	1.9	0.0	1.4
26	63	7.6	4.4	1.6	1.0	0.0	1.4
27	49	7.3	4.5	1.6	3.1	0.5	1.4
28	38	6.7	5.0	1.4	4.4[2/]	0.7	1.4
29	32	5.3	9.1	2.1		0.8	1.4
30	29	5.7	15	1.5		0.8	1.4
31	28		17			0.9	
MEAN		19.5	11.8	6.0			1.0
AC-FT		1162	726	354			58

1/ This station is operated by DWR and is located 1.7 miles above the USGS "Willow Creek near Susanville" stream gage. The purpose of this station is to determine the flows of "Mapes Big Springs" by computing the difference in flows between the two stations.

2/ No record before March 22, and between July 28 and August 18.

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 53

1989 Daily Mean Discharge
(In cubic feet per second)

WILLOW CREEK AT THE CONFLUENCE OF THE SUSAN RIVER

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1			22	26	8.9	7.3	6.5
2			22	24	8.9	7.3	6.5
3			25	24	8.9	7.3	6.5
4			25	21	8.9	7.3	6.5
5			25	21	8.6	7.3	6.7
6			27	21	10	6.5	6.7
7			27	20	12	5.4	5.7
8			30	20	13	5.5	5.9
9			30	20	12	6.2	6.5
10			30	20	12	6.0	6.5
11			33	20	12	5.1	7.3
12			29	20	11	4.9	6.5
13			27	19	8.9	4.9	5.9
14		52[1/]	24	17	8.9	5.1	6.5
15		51	21	16	8.9	5.4	5.9
16		49	14	16	8.9	6.0	5.9
17		46	14	17	9.2	6.5	9.5
18		43	11	16	9.8	6.5	9.5
19		40	9.9	15	9.2	6.5	10
20		36	8.6	13	8.9	6.5	9.5
21		35	9.8	12	8.9	6.7	8.9[1/]
22		34	11	11	9.5	7.0	
23		30	11	9.8	9.2	7.0	
24		25	12	8.9	7.3	7.0	
25		25	12	8.9	8.6	7.0	
26		25	12	8.9	8.2	7.0	
27		23	12	7.9	8.2	7.0	
28		23	14	8.6	7.3	7.0	
29		22	18	8.2	7.0	6.5	
30		22	21	9.5	7.0	6.5	
31			26		7.3	6.5	
MEAN			19.8	16.0	9.3	6.4	
AC-FT			1214	950	569	393	

1/ No record before April 14 and after September 21.

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 54

1989 Daily Mean Discharge
(In cubic feet per second)

OPERATION OF MCCOY AND HOG FLAT RESERVOIRS

	McCoy Flat Reservoir Inflow from Susan River			McCoy Flat Reservoir Release to Susan River			Hog Flat Reservoir Releases to Susan River	
DAY	APRIL	MAY	JUNE	MAY	JUNE	JULY	MAY	JUNE
1		27	3.8		33	89		37
2		27	2.3		51	88		32
3		30	2.0		56	87		30
4		36	1.0		63	90		28
5		46	2.0		67	89		24
6		57	2.6		68	86		22
7		57	2.6		69	85		19
8		54	13		72	84		18
9		52	5.9		72	83		16
10		52	5.7		72	81		14
11		45	6.2		77	78		12
12	60[1/]	32	2.4		80	78		10
13	58	30	2.0		85	76		5.9
14	52	26	1.0		89	75		3.0
15	52	24	0[1/]		89	71		0[3/]
16	51	20			89	69		
17	51	16			89	67		
18	46	14			88	65		
19	42	14			89	59		
20	32	12			89	49		
21	68	7.9			89	5		
22	84	6.2			88	0[2/]	101[3/]	
23	80	12			88		98	
24	65	16			87		91	
25	58	17			88		82	
26	45	5.9		21[2/]	88		75	
27	47	4.0		23	90		61	
28	35	4.3		23	89		58	
29	31	10		23	91		55	
30	27	15		23	89		49	
31		6.7		23			38	
MEAN	51.8	24.9	3.7	22.7	79	74	71	19.4
AC-FT	1950	1520	100	270	4670	3080	1406	537

1/ No record before April 12 and no flow after June 14.
2/ Reservoir releases only from May 26 to July 21.
3/ No releases before May 22 or after June 14.

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 55

1989 Daily Mean Discharge
(In cubic feet per second)

A AND B CANAL ABOVE LAKE LEAVITT

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	94	27	10	82	80		
2	82	22	11	67	76		
3	114	23	10	79	72		
4	114	16	10	68	61		
5	81	16	6.1	82	65		
6	68	14	6.9	90	72		
7	150E	16	6.5	95	69		
8	150E	20	6.9	100	63		
9	150E	22	8.7	88	66		
10	150E	15	10	82	71		
11	150E	17	13	79	68		
12	150E	22	19	74	65		
13	49	30	16	72	64		
14	22	40	10	67	57		
15	38	56	8.9	80	58		
16	120	51	7.3	88	56		
17	130	51	7.3	82	56		
18	130	51	4.6	75	53		
19	140	54	3.0	71	53		
20	150E	49	2.5	73	55		
21	140	48	1.0	72	46		
22	120	46	7.3	71	37		
23	84	46	20	72	18		
24	66	46	35	68	3.4		
25	63	40	41	72	0 1/		
26	49	25	52	72			
27	49	21	55	75			
28	49	16	75	72			
29	23	13	89	77			
30	20	10	110	77			
31	24		94				
MEAN	94.2E	30.7	24.2	77.7	57.7		
AC-FT	5790E	1820	1490	4620	2740		

1/ No flow after July 24.
E - Estimated